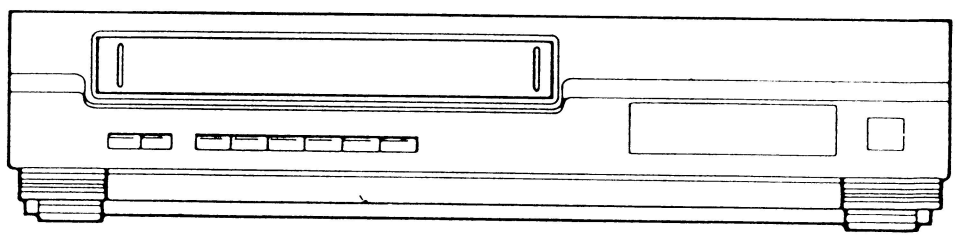
roadstar R
AUDIO · VIDEO

Service Manual

VIDEO CASSETTE RECORDER
MODEL:VCR-752E/VCR-752K



INTRODUCTION

This service manual provides a variety of service information. It contains the mechanical structure of the Video Cassette Recorder(VCR) together with mechanical adjustments and the electronic circuits in schematic form. This VCR was manufactured and assembled under our strict quality control standards and meets or exceeds industry specifications and standards

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SECTION 5 ..... REPLACEMENT PARTS LIST

SECTION 1
SUMMARY

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IMPORTANT SAFETY PRECAUTIONS

Prior to shipment from the factory, the products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

• Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptins on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▩) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Use Specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

4. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistor

5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.(Fig. 1)

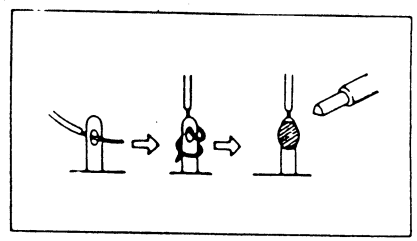


Fig. 1

6. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

7. Check that replaced wires do not contact sharp edged or pointed parts.

8. When a power cord has been replaced, check that 10-15Kg of force in any direction will not loosen it.(Fig. 2)

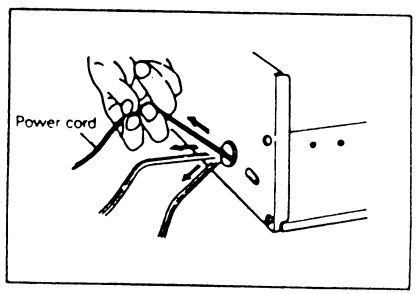


Fig. 2

9. Also check areas surrounding repaired locations.

10. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the parts specified. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

SAFETY CHECK AFTER SERVICING

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. Insulation resistance test

Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table below.

2. Dielectric strength test

Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set(RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.) See table below.

3. Clearance distance

When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table below.

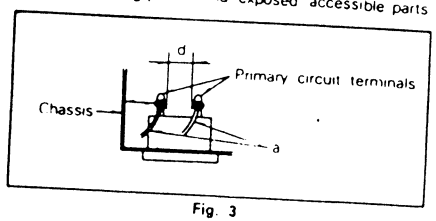


Fig. 3

Table 1.Ratings for selected areas

AC Line Voltage	Region	Insulation Resistance	Dielectric Strength	Clearance Distance(d),(d')
*110 to 130 V 200 to 240 V	Europe Australia	≧10 MΩ/500 V DC	4kV 1 minute	≧6mm(d) ≧8mm(d') (a Power cord)

*Class II model only

Note: This table is unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

4. Leakage Current test

Confirm specified or lower leakage current between B(earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.)

Measuring Method. (Power ON)
Insert load Z between B(earth ground, power cord plug prongs) and exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure and following table.

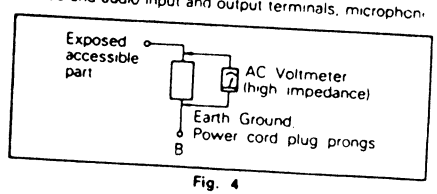


Fig. 4

Table 2.Leakage current ratings for selected areas

AC Line Voltage	Region	Load Z	Leakage Current(i)	Earth Ground (B) to:
100 to 130 V	Europe	2kΩ	i ≦ 0.7m A peak i ≦ 2m A dc	Antenna earth terminals
200 to 240 V	Australia	50kΩ	i ≦ 0.7m A peak i ≦ 2m A dc	Other terminals

Note: This table is unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

SPECIFICATIONS

General

Power Source :	AC 220V ± 10%, 50Hz
Power Consumption :	Approx. 25 Watts.
Video Recording System :	2 rotary heads, helical scanning system
Tape Speed :	23.39mm/sec(SP mode)
Tape Format :	Tape Width 1/2"(12.7mm high density tape VHS)
Maximum Recording Time :	4 hours(With "E-240 cassette, SP mode)
FF/Rewind Time :	Less than 350sec(With E-180 cassette)
Dimensions(W×H×D)	15.0"×3.4"×13.2"(380×86×335mm)
Weight :	About 13.01lbs(5.9kg)
Operating Temperature :	41°F–95°F(5°C-35°C)
Operating Humidity :	35%-80%
Timer :	24 hours display type

Video

Television System :	CCIR standard(625 lines, 50 fields)
Recording Format	PAL/SECAM Colour signal
RF Reception :	PAL/MESECAM
	VCR-752K:PAL, SECAM(B/G, D/K)
RF OUT :	VCR-752E:PAL B/G & DDR:SECAM B/G PAL G
Input Level :	PAL/SECAM G/K
	VIDEO IN(RCA type)
Output Level :	1.0Vp-p, 75ohm, unbalanced
	VIDEO OUT(RCA type)
Signal to Noise Ratio	1.0Vp-p, 75ohm, unbalanced
RF Modulator :	More than 43dB
	UHF Channels 32-40(Adjustable)

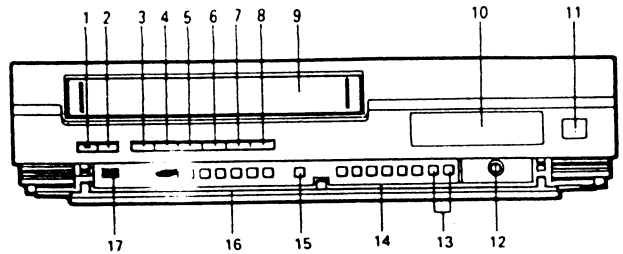
Audio

Input Level :	AUDIO IN(RCA type)
	-8dBm More than 50Kohm
Output Level :	AUDIO OUT(RCA type)
	-3dBm Less than 1Kohm
Audio Track :	Monotrack type
Audio Frequency Response :	100Hz-10kHz(-6 ~ +3)
Signal to Noise Ratio :	More than 40.

* Designs and specifications are subject to change without notice.

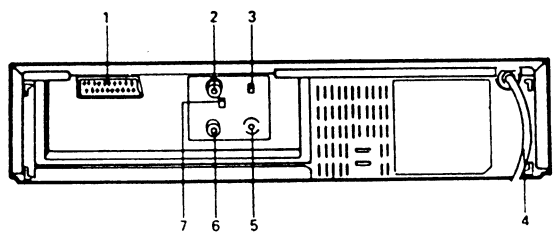
LOCATION OF CUSTOMER CONTROLS

FRONT



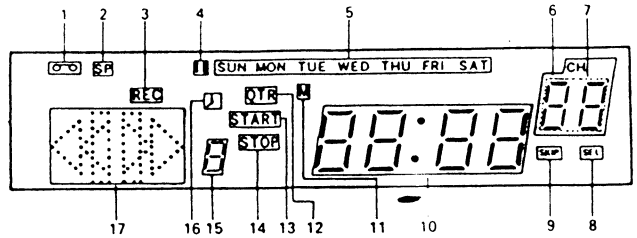
1. OPERATE BUTTON AND INDICATOR
2. EJECT BUTTON
3. STOP BUTTON
4. REWIND/REVIEW BUTTON
5. PLAY BUTTON
6. FAST FORWARD/CUE BUTTON
7. RECORD BUTTON
8. PAUSE/STILL BUTTON
9. CASSETTE COMPARTMENT
10. MULTI-FUNCTION DISPLAY
11. REMOTE SENSOR WINDOW
12. SHARPNESS CONTROL
13. CHANNEL PROGRAMME SELECTORS/ TRACKING(UP/DOWN)
14. CLOCK/TIMER CONTROL BUTTONS
15. QSR BUTTON
16. CHANNEL PRESETTING CONTROLS
17. EDIT SWITCH

REAR



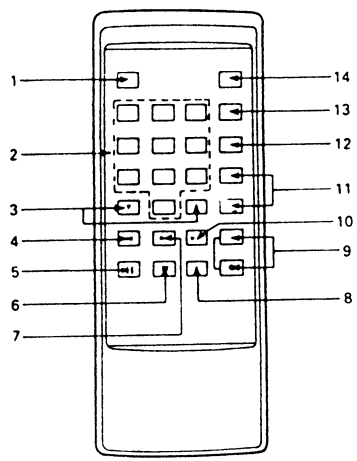
1. EURO-AV SOCKET
2. AERIAL INPUT
3. TPSG ON/OFF SWITCH
4. MAINS LEAD
5. RF CHANNEL CONTROL
6. RF OUTPUT
7. ATTENNUATION(ATT.) SWITCH

MULTIFUNCTION DISPLAY



1. CASSETTE-IN INDICATOR
2. SPEED INDICATOR
3. RECORD INDICATOR
4. WEEK INDICATOR(I, II)
5. DAY INDICATOR(SUN, MOM...SAT)
6. CHANNEL DISPLAY(88)
7. LINE INDICATOR(RU)
8. PRESET INDICATOR(SEL)
9. SKIP INDICATOR(SKIP)
10. SWITCHABLE DISPLAY
11. MEMORY INDICATOR(M)
12. QSR INDICATOR
13. START INDICATOR
14. STOP INDICATOR
15. PROGRAMMING MODE INDICATOR
16. TIMER INDICATOR
17. FUNCTION INDICATOR

REMOTE CONTROL



1. OPERATE BUTTON
2. NUMBER BUTTONS "0" THROUGH "9"
3. CHANNEL SELECTOR
4. REWIND/REVIEW BUTTON
5. PAUSE/STILL BUTTON
6. STOP BUTTON
7. PALY BUTTON
8. FRAME ADVANCE BUTTON
9. RECORD BUTTONS (TWO BUTTONS ENTRY)
10. FAST FORWARD/CUE BUTTON
11. TRACKING CONTROL BUTTONS
12. TAPE COUNTER RESET BUTTON
13. CLOCK/COUNT BUTTON
14. INPUT SELECT BUTTON(TU/AV)

SECTION 2
CABINET & MAIN FRAME

CABINET DISASSEMBLY

1. Top Case Bottom Cover

A. Remove 4 screws(A).(See Fig. 2-1)
B. Hold the back of Top Case and lift it up slightly backward to remove it.
C. Remove 6 screws(B) to remove the Bottom Cover.(See Fig. 2-1)

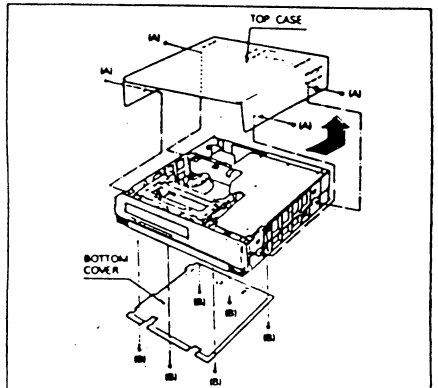


Fig. 2-1

2. Front Panel

A. Remove the Top Cover (See Fig. 2-1)
B. Remove Bottom Cover (See Fig. 2-1)
C. Remove 3 screws(C) on the top of the Front Panel.
D. Remove the stoppers on the top of the Front Panel.
E. Remove the stoppers on the bottom of the Front Panel.

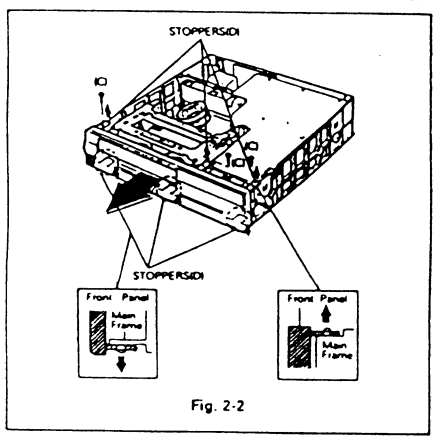


Fig. 2-2

CIRCUIT BOARD DISASSEMBLY

1. Circuit Board Arrangement

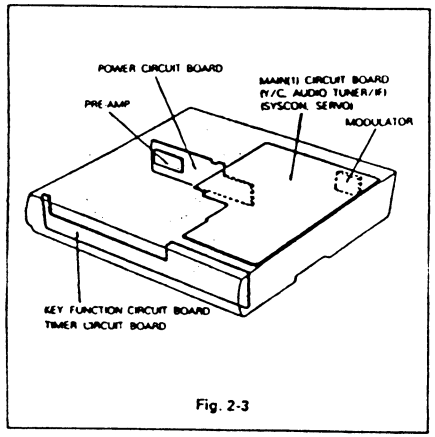


Fig. 2-3

2. Timer/Key Circuit Board

A. Pull the P.C.Board toward you while pressing 2 stoppers in the direction of the arrows to disengage, and remove the P.C.Board (See Fig. 2-2)
B. Remove the connector for complete removal.

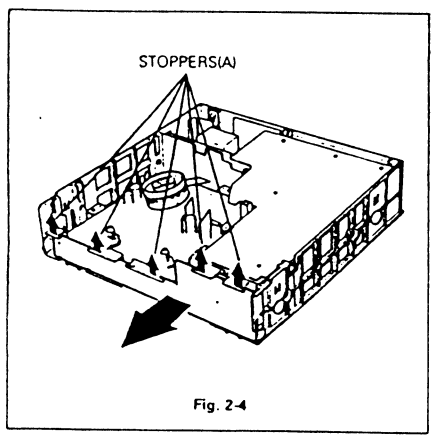


Fig. 2-4

3. Main Circuit Board(I)(Y/C, Audio, Tuner/IF, Syscon, Servo)

A. Remove 2 screws (C)
B. Lift the rear part up and pull the P.C. Board backward.
C. Remove the connector for complete removal.

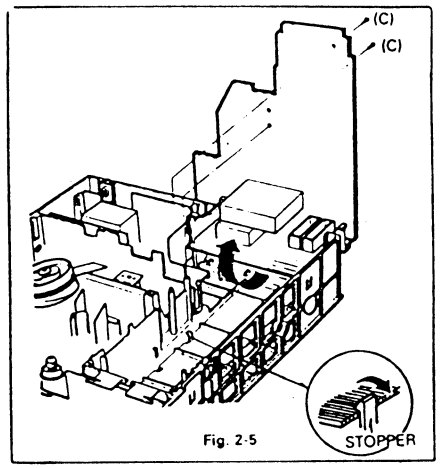


Fig. 2-5

4. Pre-Amp Circuit Board

A. Remove 2 screw(E)
B. Remove Pre-Amp Package from Main Frame.
C. Remove bracket Pre-Amp from Pre-Amp package.
D. Remove Pre-Amp Circuit Board from Pre-Amp package.

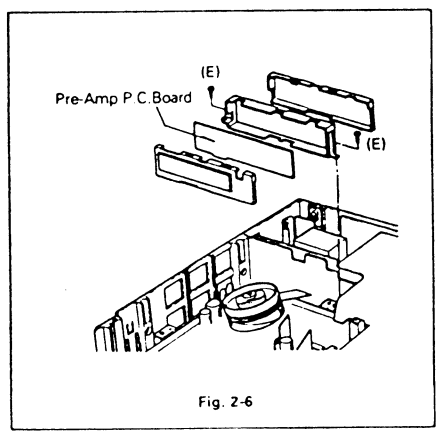


Fig. 2-6

5. Power Circuit Board

A. Remove Main(I) P.C.Board (See Fig. 2-5)
B. Remove 2 screws(F)

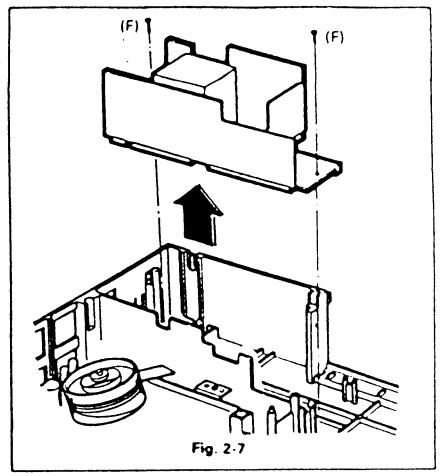
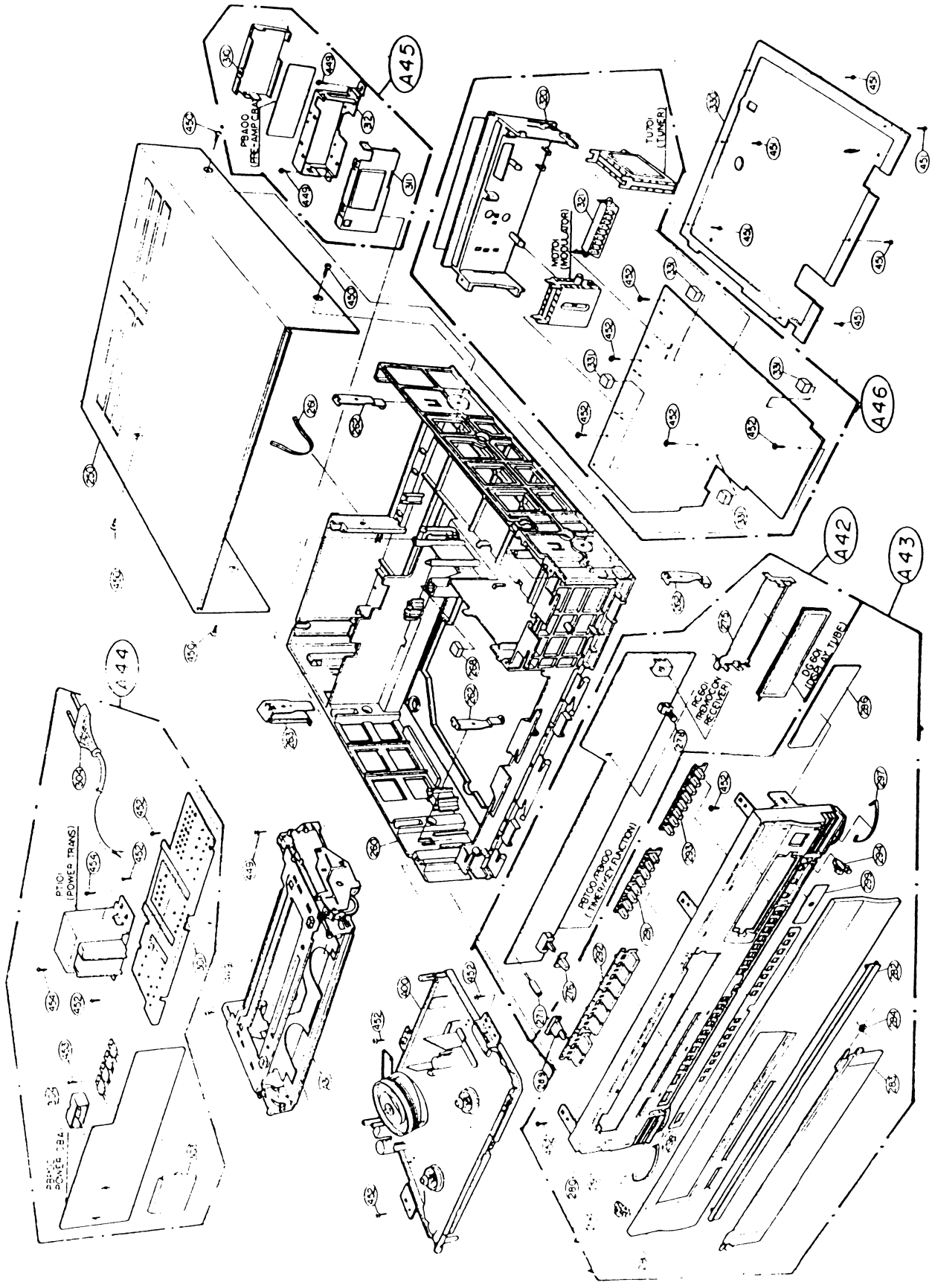


Fig. 2-7

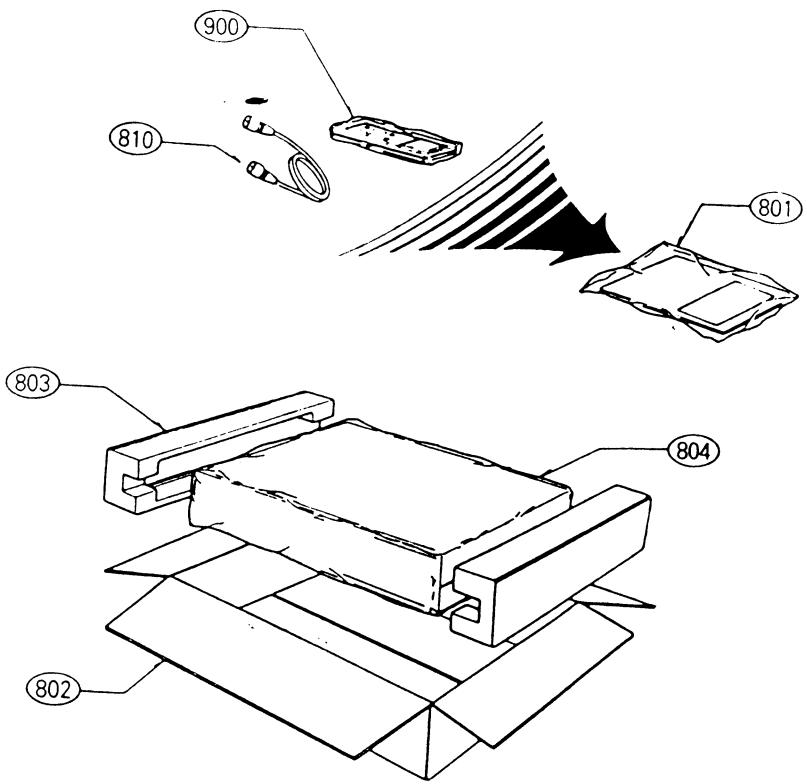
EXPLODED VIEWS

1. Cabinet and Main Frame Section

NOTE) Refer to "SECTION 5 REPLACEMENT PARTS LIST" in order to look for the part number of each part.

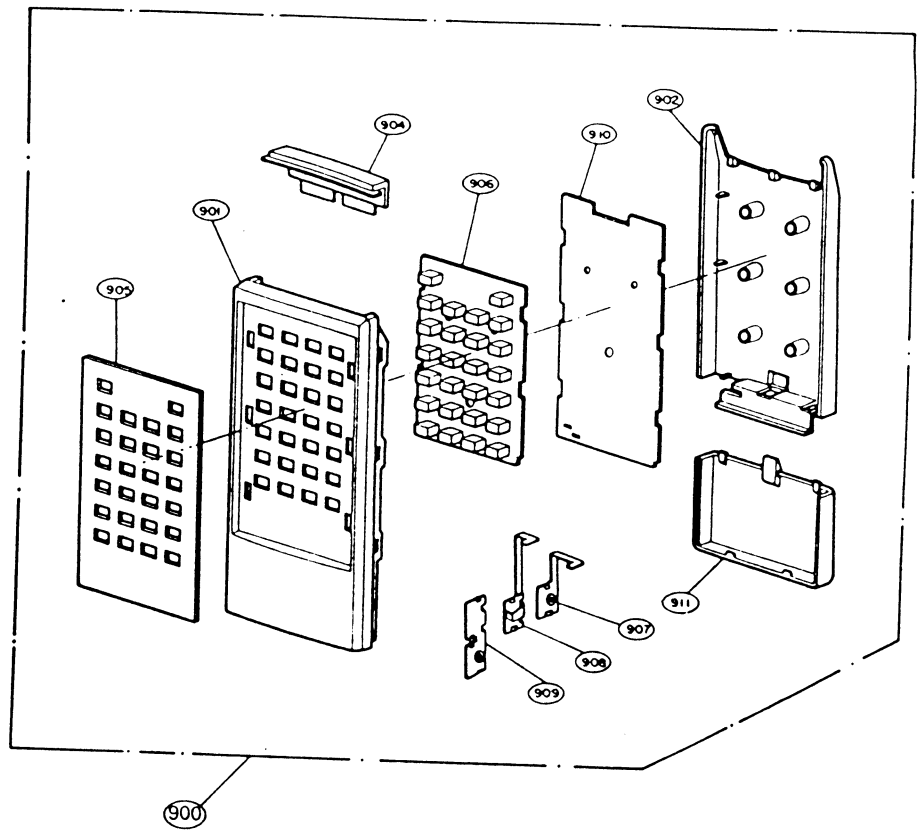


2. Packing Accessory Section



NOTE) Refer to "SECTION 5 REPLACEMENT PARTS LIST" in order to look for the part number of each part.

3. Remote Control Section



NOTE) Refer to "SECTION 5 REPLACEMENT PARTS LIST" in order to look for the part number of each part.

ELECTRICAL

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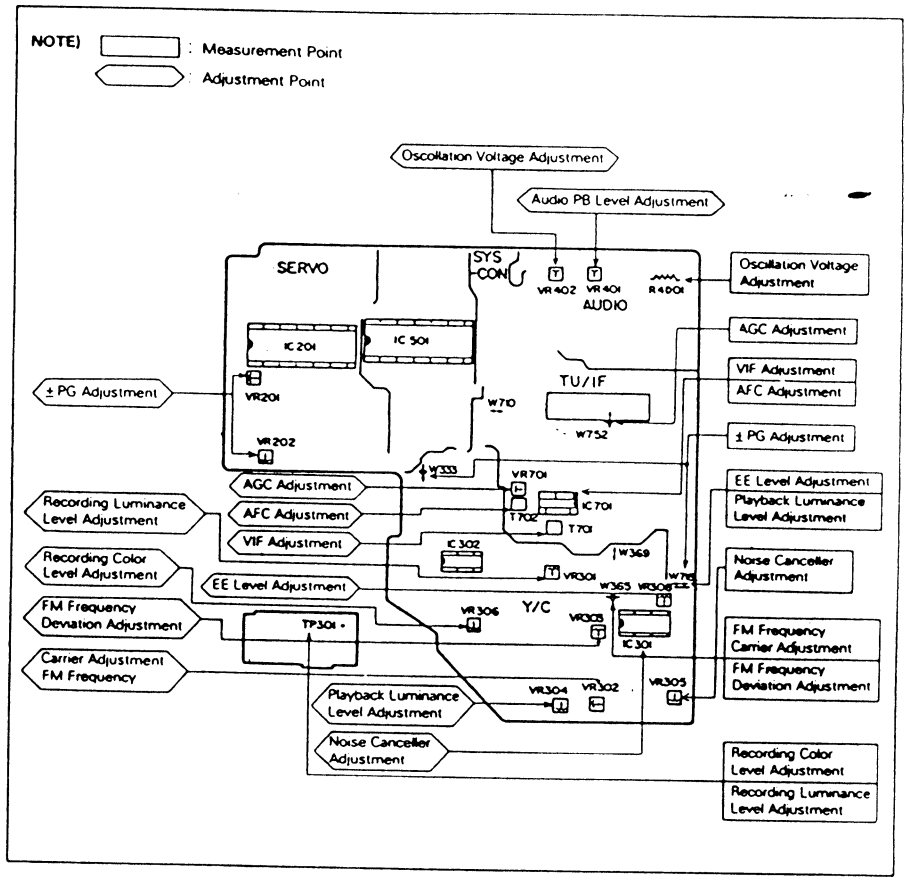


Electronic Test Equipment Requirements :

• Oscilloscope	• D.C power supply
• Video Signal Generator	• PAL B/G Signal OSD
• Modem Tester	• Sweep & Marker OSC
• Audio Signal Generator	• Monitor Scope
• Level Meter	• Digital Voltmeter
• Frequency Counter	• Digital Multimeter

1. Audio Circuit

(1) Audio PB Level Adjustment

MODE	SPECIFICATIONS	Adjustment Point	Measurement Point
PB	-3 ± 1.5dBm -5 ± 1.5dBm (1KHz)	VR401	Audio Out Jack

A. Purpose
We perform this procedure for adjusting Audio PB Level to its spec.

B. Adjustment Method
a. Playback an alignment tape
b. Adjust VR401 so that 1kHz output level of level meter is -3 ± 1.5dBm in case of SCART, -5 ± 1.5dBm in case of RCA.
c. At this time, while adjusting the Head Azimuth, make 6kHz level be maximum.

Waveform

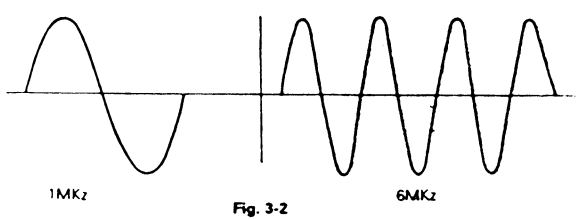


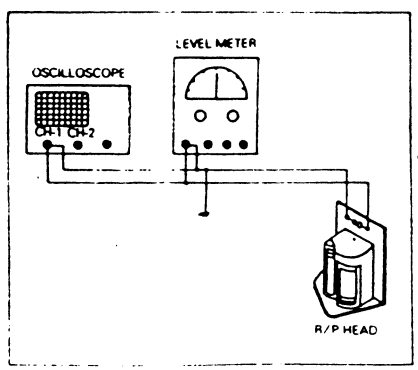
Fig. 3-2

(2) Oscillation Voltage Adjustment

MODE	SPECIFICATIONS	Adjustment Point	Test Point
Record	2.2mV RMS	VR 402	R4D01 both terminal

A. This is for adjusting the Bias current to SPEC in recording.

B. Adjustment Method
a. Confirm that the oscillation voltage is 2.2mV RMS to connect the level meter terminal to both terminals of R4D01 during recording.
b. At this time, adjust VR402 and make the oscillation voltage fit to SPEC.



MODE	SPECIFICATIONS	Adjustment Point	Test Point
PB	6.5H + 0.5H	VR201 VR202	W333 W718 VIDEO OUT TERMINAL W333 W718 VIDEO OUT TERMINAL

A. Purpose
We perform this procedure for dividing video A/C head phase with 180° and tracing each track exactly to meet head switching point with VHS Spec.

B. Adjusment Method
a. Set PAL/SP test tape in PB mode.
b. Connect CH-1 terminal of oscilloscope to W333 H.SW and CH-2 to Video Out Terminal, W369.
c. Adjust VR201/VR202 so that the distance form A(B) head selection point of H.SW signal to the starting point of horizontal sinchronized signal is 6.5H(416 μ sec, 1H = 64 μ sec), while triggering the complex video signal of CH-2 to CH-1 H.SW.
d. The conversion of A/B Head SW signal uses the Polarity Invert Knob of oscilloscope.

Waveform

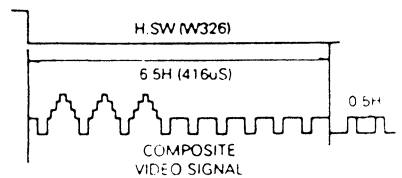


Fig. 3-3

Reference)
1. ± PG adjustment is practiced in the state of the RF level being maximum and the locked Servo System.
2. The location difference of A/B Head adjustment should ve within ± 0.5H(32 μ sec).
3. The Adjustment Spec and the Practice Difference should be within ± 0.5H(32 μ sec).
4. Oscilloscope and VCR set should connecto GND.

3. Y/C Circuit

1) EE Level Adjustment

MODE	Specifications	Adjustment Point	Test Point
STOP	1.0Vp-p ± 0.1Vp-p	VR308	W718, TP302

A. Connect CH-1 of the oscilloscope to W710.
B. Connect the Video Signal generator to Video In Jack of the VCR.
C. Measure the value from the lower end of synchronized signal to 100% white signal.

Waveform

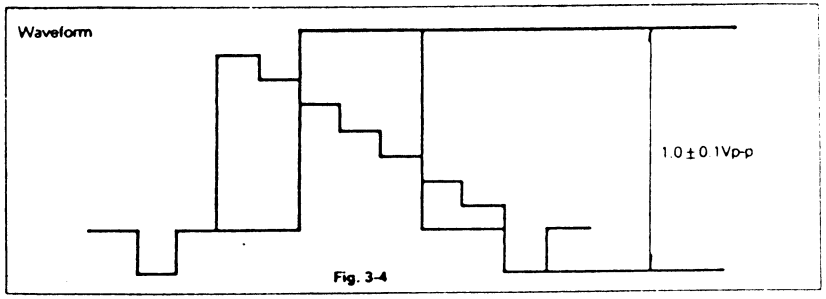


Fig. 3-4

(2) FM Frequency Carrier Adjustment

MODE	Specifications	Adjustment Point	Test Point
REC	White Peak 4.8±0.1MHz Sync Tip 3.8±0.1MHz	VR302	W365

A. Connect CH-1 of oscilloscope to Output Jack of Modem Tester.
B. Connect Input Jack of Modem Tester to W365.(The VCR and the Modem Tester should be connected with 1:1 Probe.)
C. Connect the Videl Signal Generator to Video In Jack of The VCR.
D. The terminal of the Modem Tester should be position at ATT 0dB, PAL mode, Demod and Marker On.

*** POSITION OF MODEM TESTER TERMINAL**

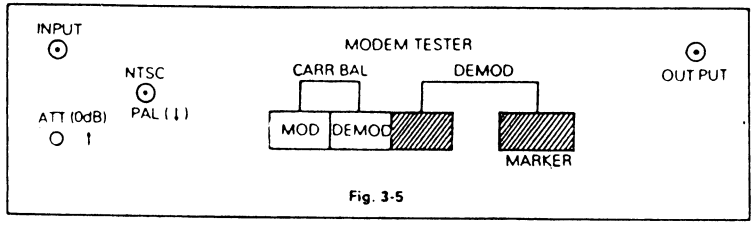


Fig. 3-5

E. Adjust VR302 so that 3.8MHz marker on the oscilloscope accords with the lower end of Sync.

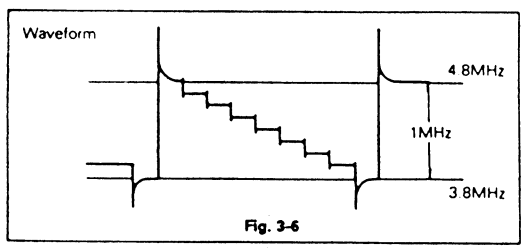


Fig. 3-6

(3) FM Frequency Deviation Adjustment

MODE	Specifications	Adjustment Point	Test Point
REC	1±0.1MHz	VR303	W365

A. Connect CH-1 of oscilloscope to Output Jack of Modem Tester
B. Connect Input Jack of Modem Tester to W365 (The VCR and the Modem Tester should be connected with 1:1 Probe.)
C. Connect the Video Signal Generator to Video In Jack of the VCR
D. The terminal of the Modem Tester should position at ATT 0dB, PAL mode, Demode and Marker On.(Refer to Fig. 3-5)
E. Adjust VR302 so that 3.8MHz marker on the oscilloscope accords with the lower end of Sync, and 4.8MHz marker on the oscilloscope, the whiet Peak signal (Refer to Fig. 3-6)

(4) Recording Color Level Adjustment

MODE	Specifications	Adjustment Point	Test Point
REC	35±2mVp-p	VR306	TP001

A. Connect CH-1 of oscilloscope to TP001
B. Connect the Video Signal Generator to Video In Jack of the VCR.
C. Minimise the F.M.Y REC current by VR301
D. Adjust VR306 so that the color REC current value from TP001 to be 30mVp-p.

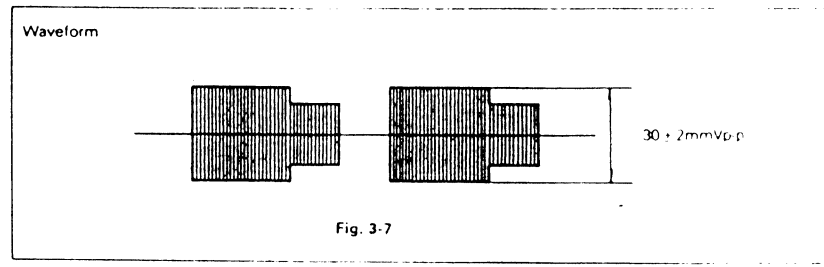


Fig. 3-7

(5) Recording Luminance Level Adjustment

MODE	Specifications	Adjustment Point	Test Point
REC	140±5mVp-p	VR301	TP001

A. Connect CH-1 of oscilloscope to TP001
B. Connect the Video Signal Generator to Video In Jack of the VCR.
C. Measure the value of TP001

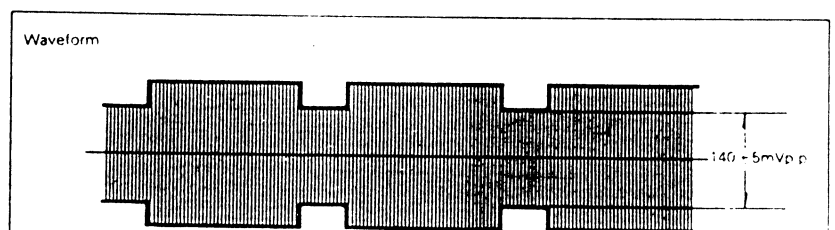


Fig. 3-8

(6) Playback Luminance Level Adjustment

MODE	Specifications	Adjustment Point	Test Point
PB	1 ± 0.1Vp-p	VR304	W718

A. Connect CH-1 of oscilloscope to W718
B. Connect the Video Signal Generato to Video In Jack of the VCR
C. Playback an alignment tape (including 100% white signal)
D. Adjust VR304 so that Video waveform is 1Vp-p

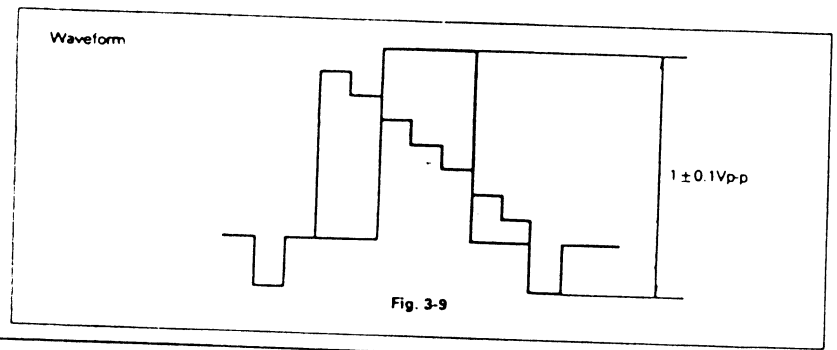


Fig. 3-9

(7) Noise Canceller Adjustment

MODE	Specifications	Adjustment Point	Test Point
PB	Refer to Fig. 3-10	IC301 pin ⑨ IC301 pin ⑩	VR305

A. Connect CH-1 of oscilloscope to IC301 Pin ⑨
B. Connect CH-2 of oscilloscope to IC301 Pin ⑩
C. Playback a SP alignment tape(including 100% white signal)
D. Adjust VR305 so that the Videl waveform of IC301 Pin ⑨ and ICf301 Pin ⑩ are same with each other.

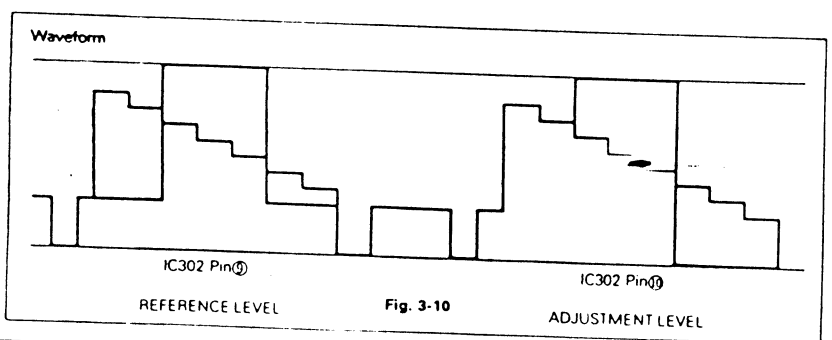


Fig. 3-10

4. Tuner/IF Circuit

(1) VIF Adjustment

MODE	Specifications	Adjustment Point	Test Point
EE (without signal)	Refer to Fig 3-11	T701	IC701 Pin 1

A. Connect as shown in Fig. 3-12
B. Attenuate the Sweep OSC Gain by 25 ± 5dB
C. Apply DC12V to Pin② of Tuner MB Terminal
D. Apply DC 10V to pin⑧ of IC707.
E. Adjust T701 so that the waveform of monitor is same as Fig. 3-11

• Caution in Adjustment

1. The cable connected to Sweep OSC Monitor scope should be within 50Ω.
2. The Cable VSWR should be within 2

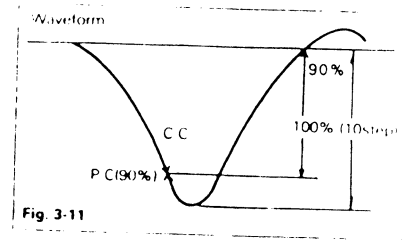


Fig. 3-11

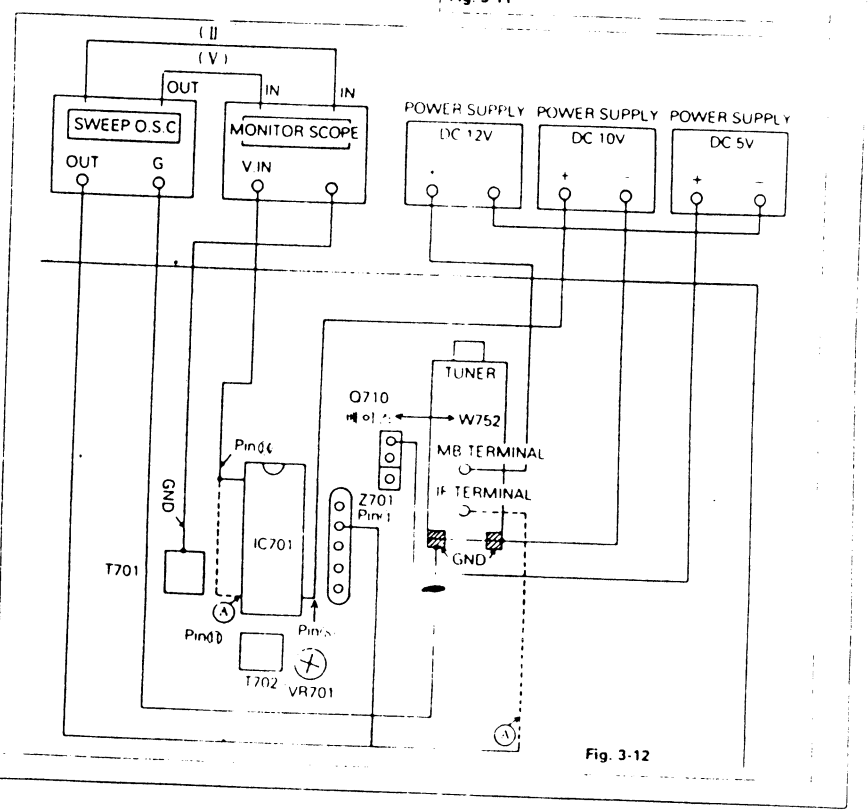


Fig. 3-12

(2) AFC Adjustment

MODE	Specifications	Adjustment Point	Test Point
EE (with signal)	Refer to Fig 3-13	T702	IC701 Pin⑪

A Connect as shown in Fig. 3-12.
B Attenuate the Sweep OSC Gain by 25 ± dB
C Apply DC 12V to Tuner MB Terminal
D Remove DC 10V From IC701 Pin⑩
E Apply DC 5V to Q710 Base. .
F Connect the Sweep OSC and the Monitor Scope as shown the doted line(A) of Fig. 3-12.
G Adjust T702 so that the waveform of monitor is same as Fig. 3-13.

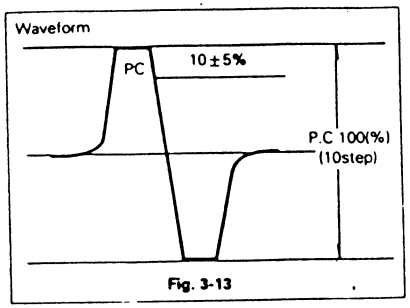


Fig. 3-13

(3) AGC Adjustment

MODE	Specifications	Adjustment Point	Test Point
CH (Normal Reception)	5 + 0.1V	VR701	W752

A Connect as shown in Fig. 3-12
B Tune CH-9 whose input electric field is 60dBμ ± 1dBμ
C Connect the Digital Voltmeter to W752
D Adjust VR701 so that the Digital Voltmeter is 5 ± 0.1V.

• **Reference**
1 VIF and AFC adjustment are performed in the jig state, and is not performed in the assembling line
2 Maintain the Input Gain Fully in adjusting AGC

• **Caution in testing**
1 When practicing this adjustment, adjust after more than 20minutes with TV set turning on
2 Adjust after completing itself test of measuring apparatus
3 Sweep osc Marker frequency is followed by Table 1

• **Abbreviation**
- APC Adjacent picture carrier
- SIF Sound Intermediate Frequency
- CIF Color Intermediate Frequency
- CEN Center Frequency
- PIF Picture Intermediate Frequency
- ASC Adjacent Sound Carrier

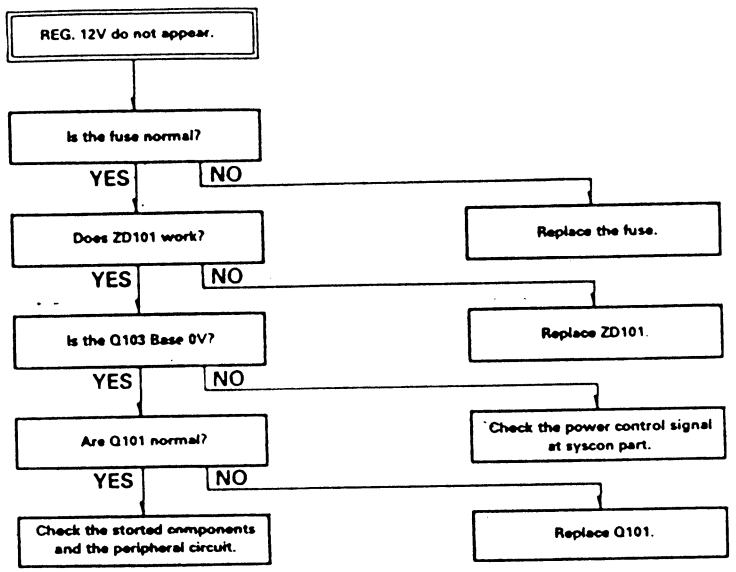
Table 1) Frequency Table (MHz)

TABLE ADDRESS	1	2	3	4	5	6
FREQUENCY	32.40	33.40	34.47	36.00	38.90	40.40
MARKER NAME	APC	SIF	CIF	CEN	PIF	ASC

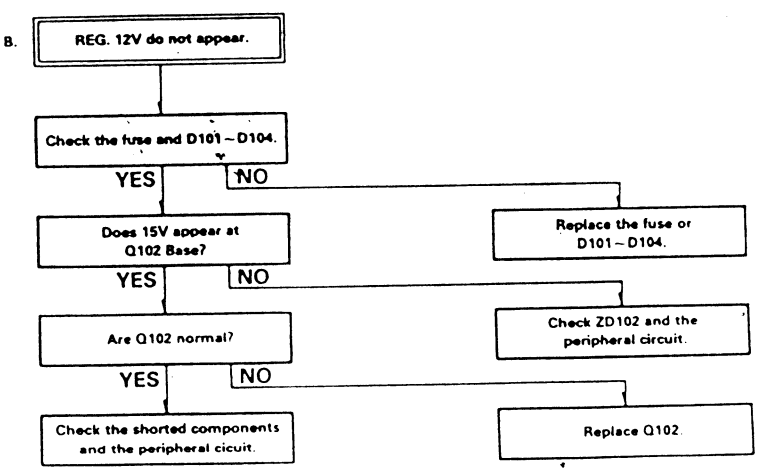
ELECTRICAL TROUBLESHOOTING GUIDE

1. Power Circuit

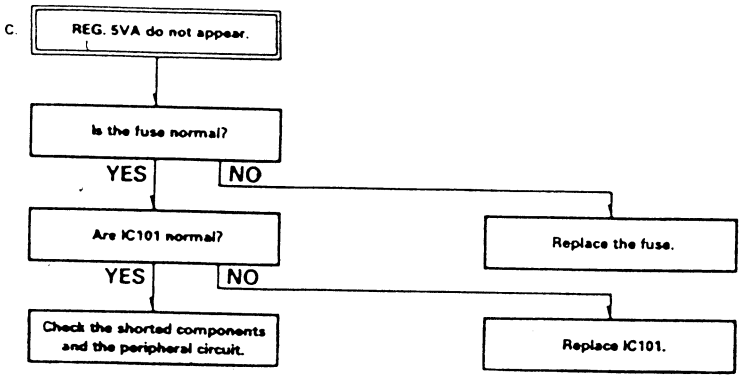
A.



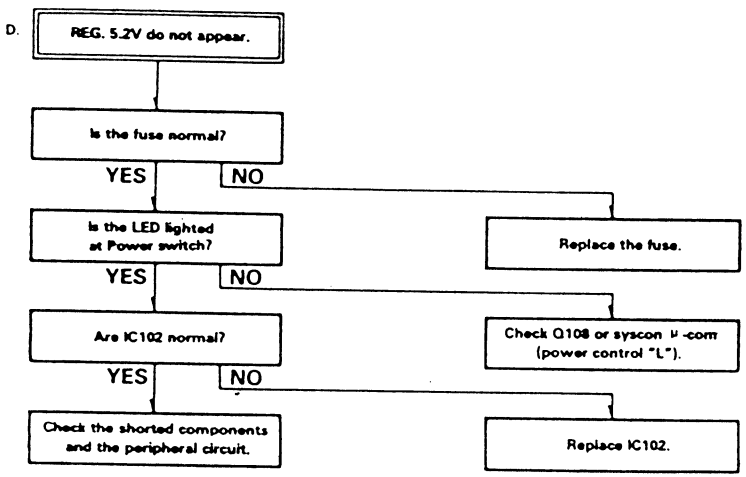
B.



C.

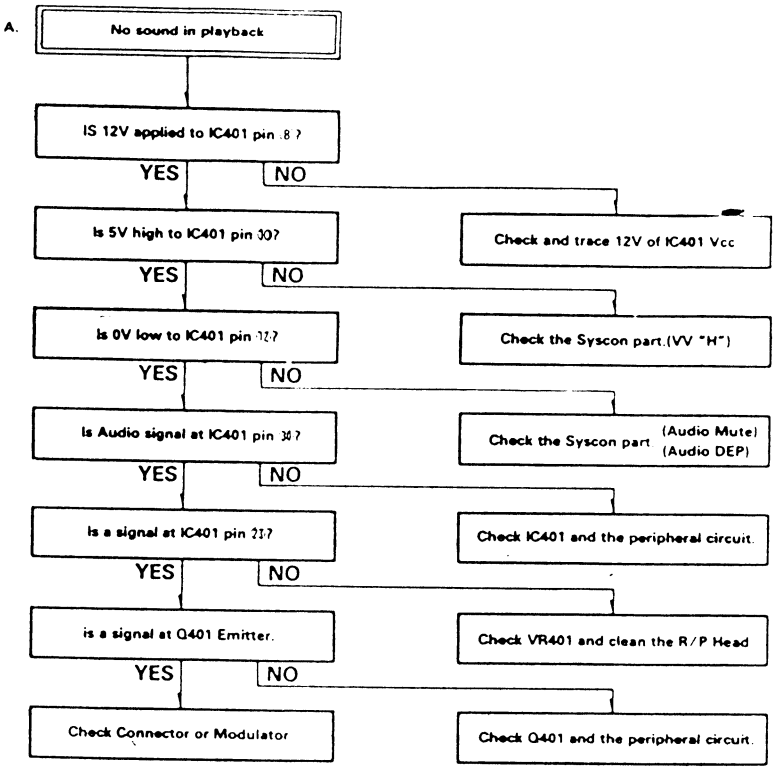


D.

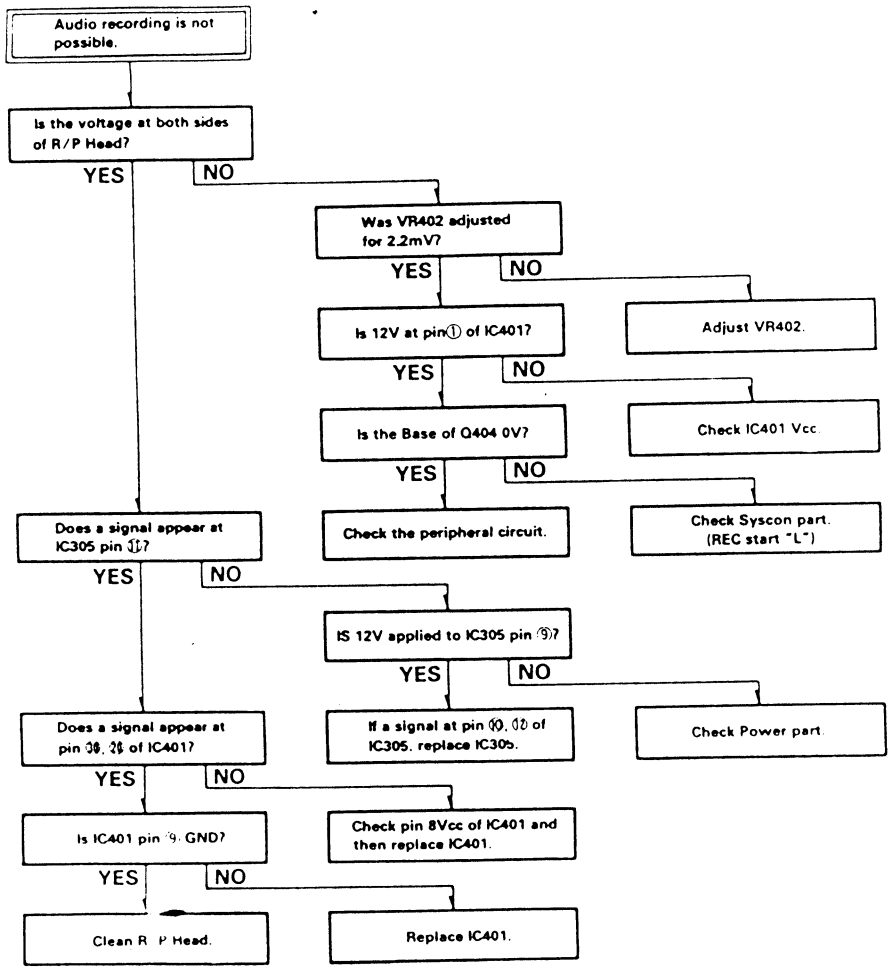


2. Audio Circuit

A.



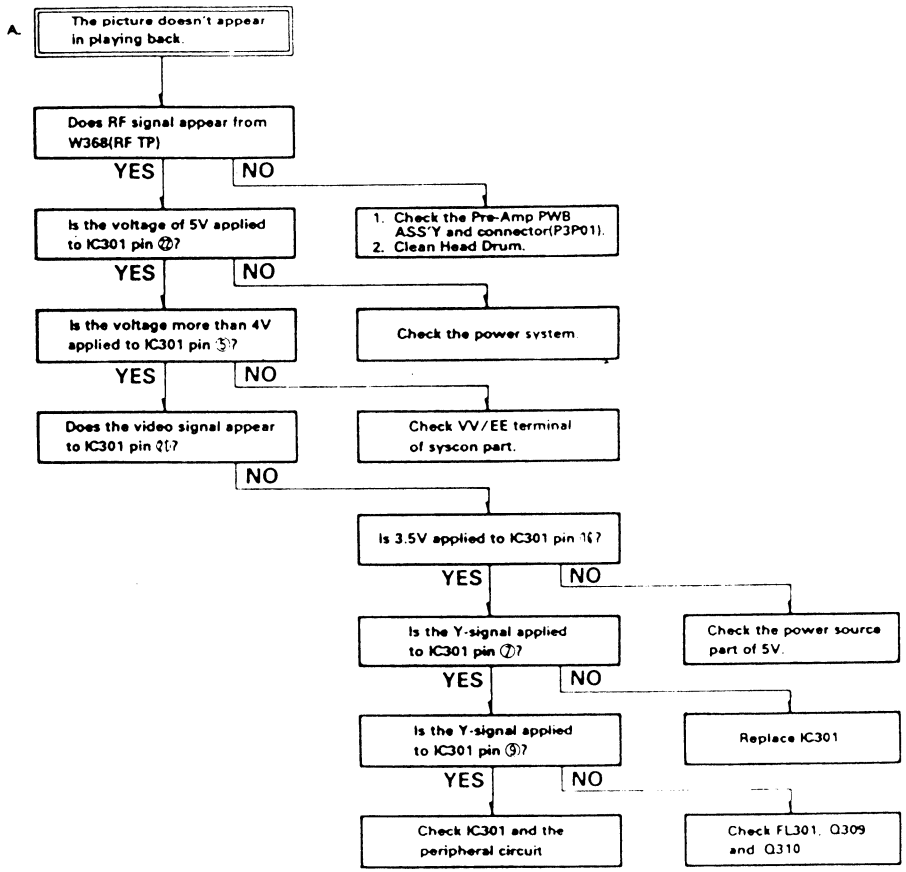
B.



3-14

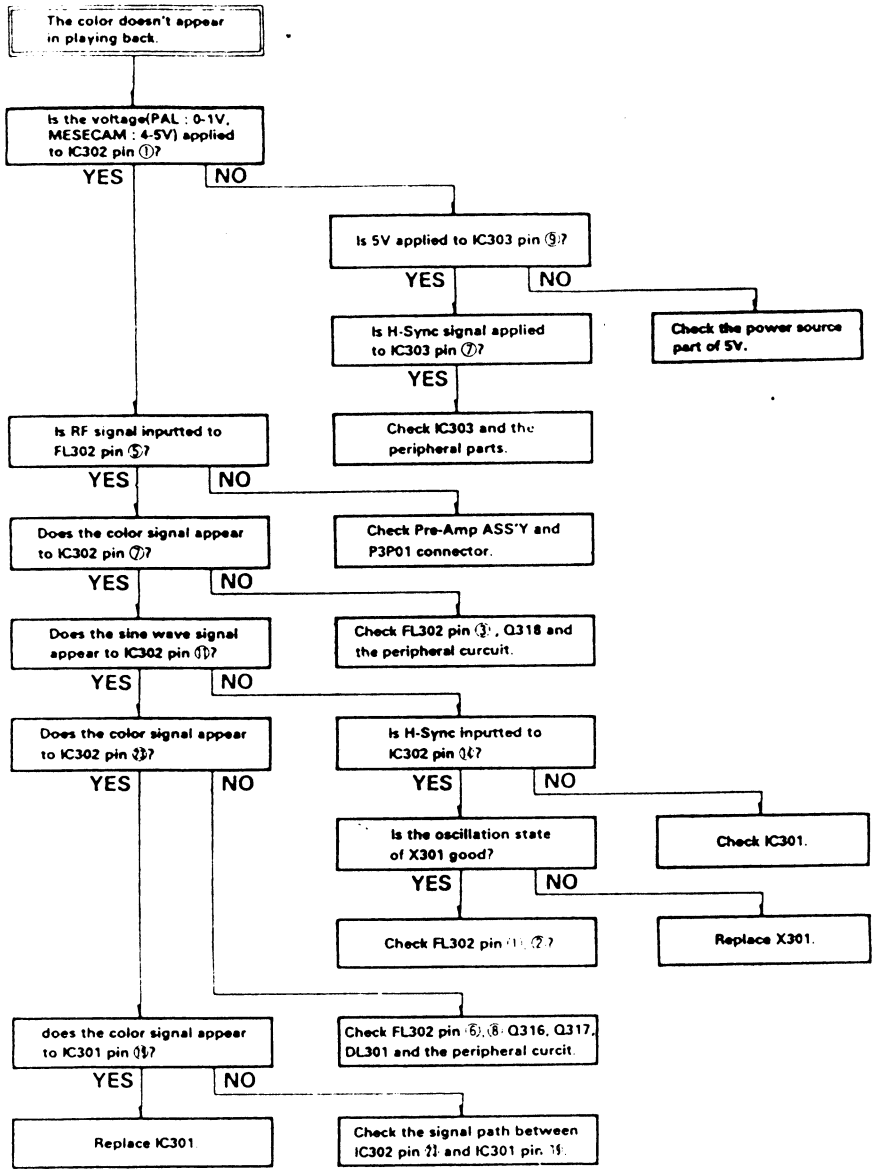
3. Y/C Circuit

A.

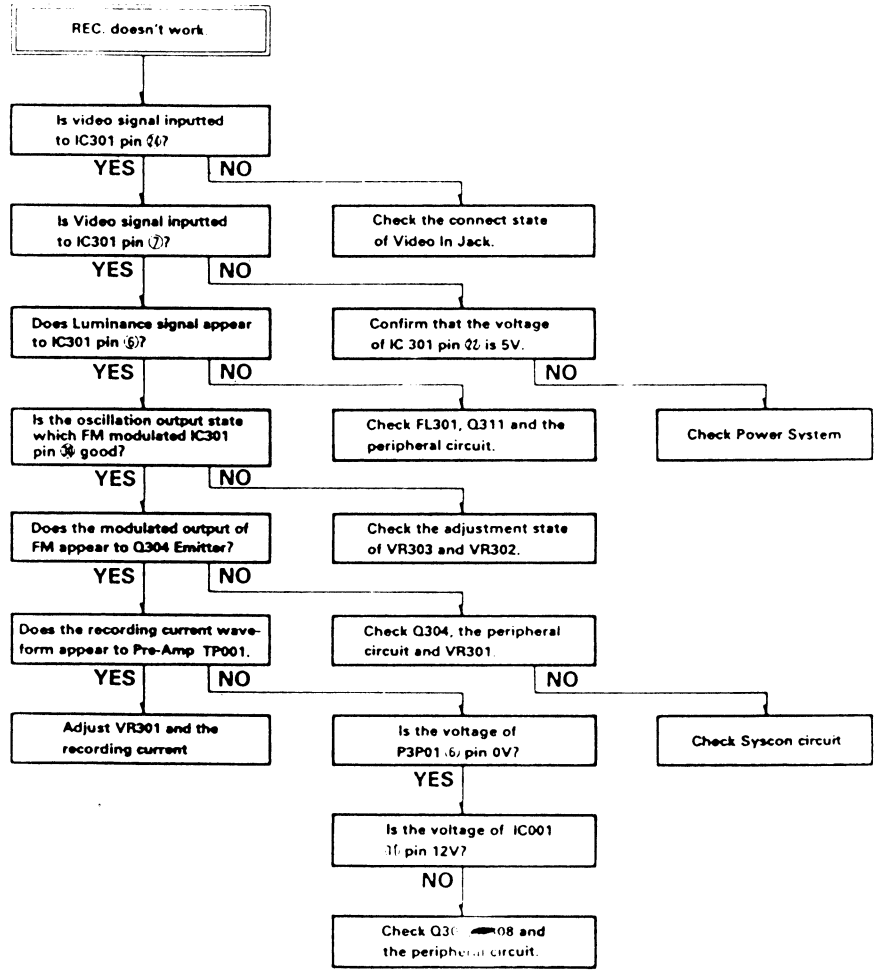

The picture doesn't appear in playing back.
Does RF signal appear from W368(RF TP)
YES
NO
1. Check the Pre-Amp PWB ASS'Y and connector(P3P01).
2. Clean Head Drum.
Is the voltage of 5V applied to IC301 pin ㉒?
YES
NO
Check the power system.
Is the voltage more than 4V applied to IC301 pin ⑤?
YES
NO
Check VV/EE terminal of syscon part.
Does the video signal appear to IC301 pin ㉑?
NO
Is 3.5V applied to IC301 pin ⑯?
YES
NO
Check the power source part of 5V.
Is the Y-signal applied to IC301 pin ⑦?
YES
NO
Replace IC301
Is the Y-signal applied to IC301 pin ⑨?
YES
NO
Check FL301, Q309 and Q310
Check IC301 and the peripheral circuit

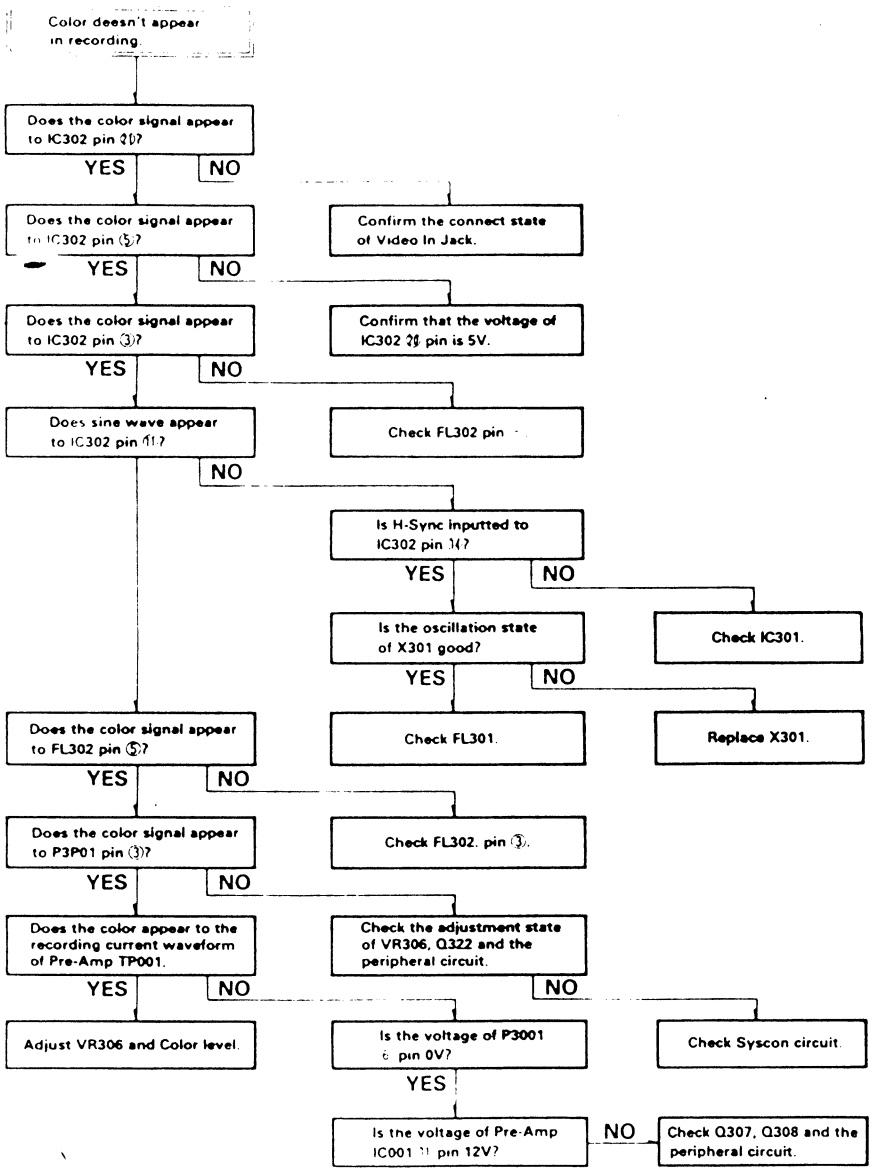
3-15

B

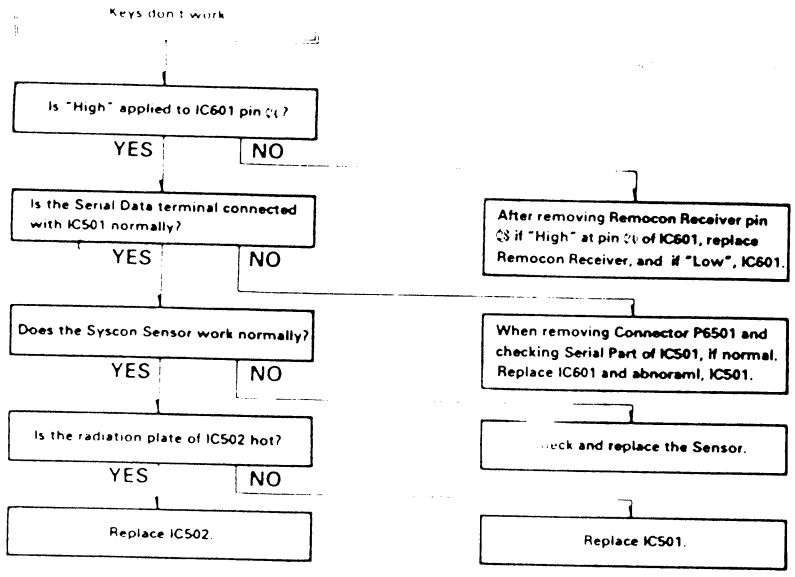

The color doesn't appear in playing back.
Is the voltage(PAL : 0-1V, MESECAM : 4-5V) applied to IC302 pin ①?
YES
NO
Is 5V applied to IC303 pin ⑤?
YES
NO
Check the power source part of 5V.
Is H-Sync signal applied to IC303 pin ⑦?
YES
Check IC303 and the peripheral parts.
Is RF signal inputted to FL302 pin ⑤?
YES
NO
Check Pre-Amp ASS'Y and P3P01 connector.
Does the color signal appear to IC302 pin ⑦?
YES
NO
Check FL302 pin ③, Q318 and the peripheral curcuit.
Does the sine wave signal appear to IC302 pin ⑪?
YES
NO
Is H-Sync inputted to IC302 pin ⑭?
YES
NO
Check IC301.
Is the oscillation state of X301 good?
YES
NO
Replace X301.
Check FL302 pin ⑪, ⑫?
Does the color signal appear to IC302 pin ⑬?
YES
NO
does the color signal appear to IC301 pin ⑬?
YES
NO
Check FL302 pin ⑥, ⑧, Q316, Q317, DL301 and the peripheral curcit.
Replace IC301
Check the signal path between IC302 pin ⑬ and IC301 pin ⑯.

C

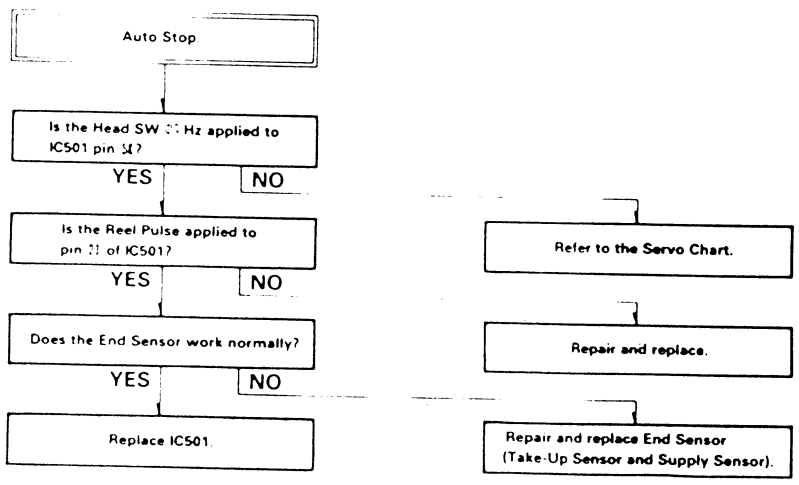

REC. doesn't work
Is video signal inputted to IC301 pin ⑭?
YES
NO
Is Video signal inputted to IC301 pin ⑦?
YES
NO
Check the connect state of Video In Jack.
Does Luminance signal appear to IC301 pin ⑥?
YES
NO
Confirm that the voltage of IC 301 pin ㉒ is 5V.
NO
Is the oscillation output state which FM modulated IC301 pin ㉔ good?
YES
NO
Check FL301, Q311 and the peripheral circuit.
Check Power System
Does the modulated output of FM appear to Q304 Emitter?
YES
NO
Check the adjustment state of VR303 and VR302.
Does the recording current wave-form appear to Pre-Amp TP001.
YES
NO
Check Q304, the peripheral circuit and VR301.
NO
Adjust VR301 and the recording current
Is the voltage of P3P01 ⑥ pin 0V?
YES
NO
Check Syscon circuit
Is the voltage of IC001 ㉛ pin 12V?
NO
Check Q3[illegible]08 and the peripheral circuit.


Color deesn't appear in recording.
Does the color signal appear to IC302 pin ⑩?
YES
NO
Confirm the connect state of Video In Jack.
Does the color signal appear to IC302 pin ⑤?
YES
NO
Confirm that the voltage of IC302 ㉘ pin is 5V.
Does the color signal appear to IC302 pin ③?
YES
NO
Check FL302 pin
Does sine wave appear to IC302 pin ⑪?
NO
Is H-Sync inputted to IC302 pin ⑭?
YES
NO
Check IC301.
Is the oscillation state of X301 good?
YES
NO
Replace X301.
Check FL301.
Does the color signal appear to FL302 pin ⑤?
YES
NO
Check FL302. pin ③.
Does the color signal appear to P3P01 pin ③?
YES
NO
Check the adjustment state of VR306, Q322 and the peripheral circuit.
Does the color appear to the recording current waveform of Pre-Amp TP001.
YES
NO
NO
Adjust VR306 and Color level.
Is the voltage of P3001 pin 0V?
YES
Check Syscon circuit.
Is the voltage of Pre-Amp IC001 pin 12V?
NO
Check Q307, Q308 and the peripheral circuit.

B Keys don't work

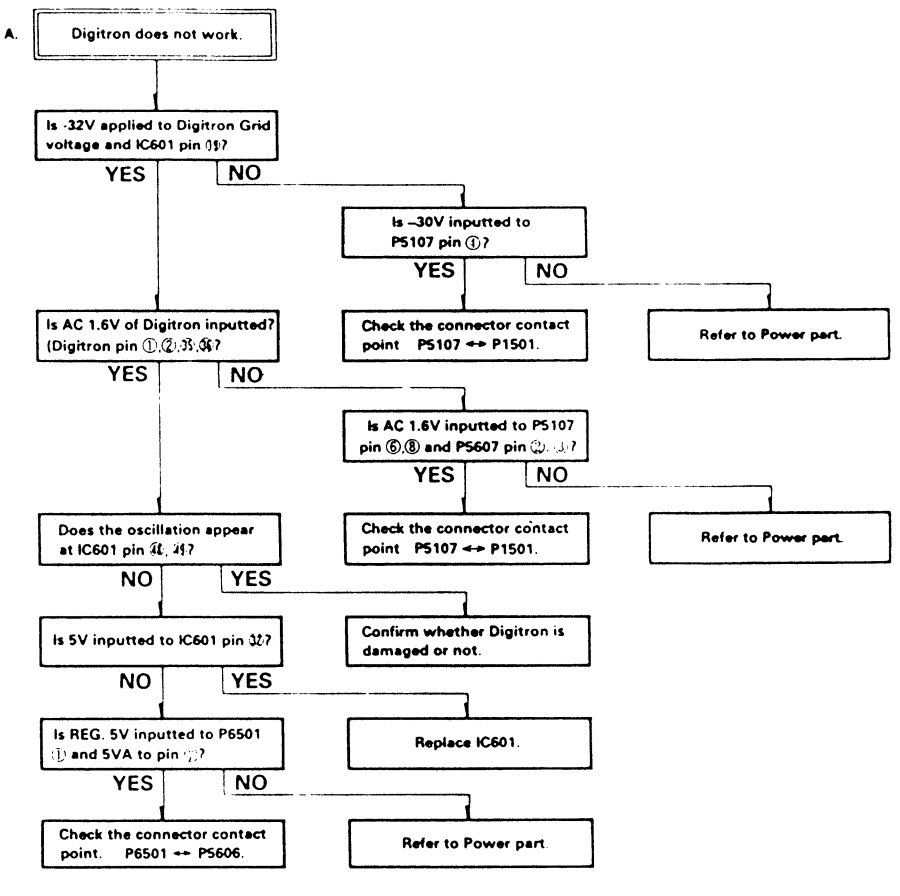

Is "High" applied to IC601 pin ㉛?
YES
NO
After removing Remocon Receiver pin ㉓ if "High" at pin ㉛ of IC601, replace Remocon Receiver, and if "Low", IC601.
Is the Serial Data terminal connected with IC501 normally?
YES
NO
When removing Connector P6501 and checking Serial Part of IC501, If normal. Replace IC601 and abnoraml, IC501.
Does the Syscon Sensor work normally?
YES
NO
Check and replace the Sensor.
Is the radiation plate of IC502 hot?
YES
NO
Replace IC501.
Replace IC502.

C Auto Stop

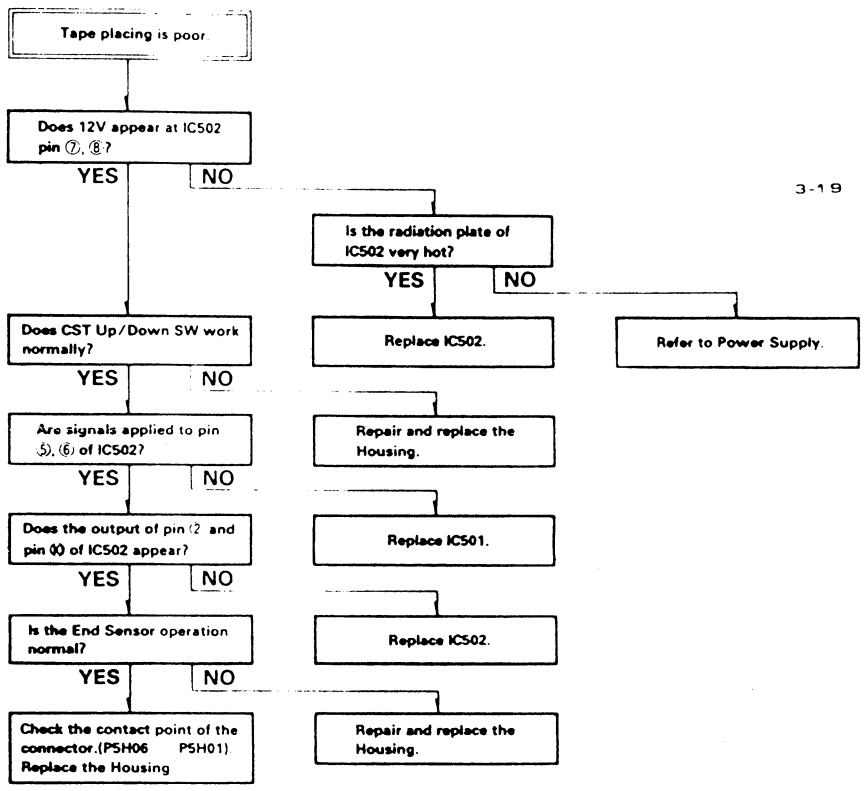

Is the Head SW 30Hz applied to IC501 pin ㊷?
YES
NO
Refer to the Servo Chart.
Is the Reel Pulse applied to pin ㉑ of IC501?
YES
NO
Repair and replace.
Does the End Sensor work normally?
YES
NO
Repair and replace End Sensor (Take-Up Sensor and Supply Sensor).
Replace IC501.

4. Syscon Circuit

A. Digitron does not work.

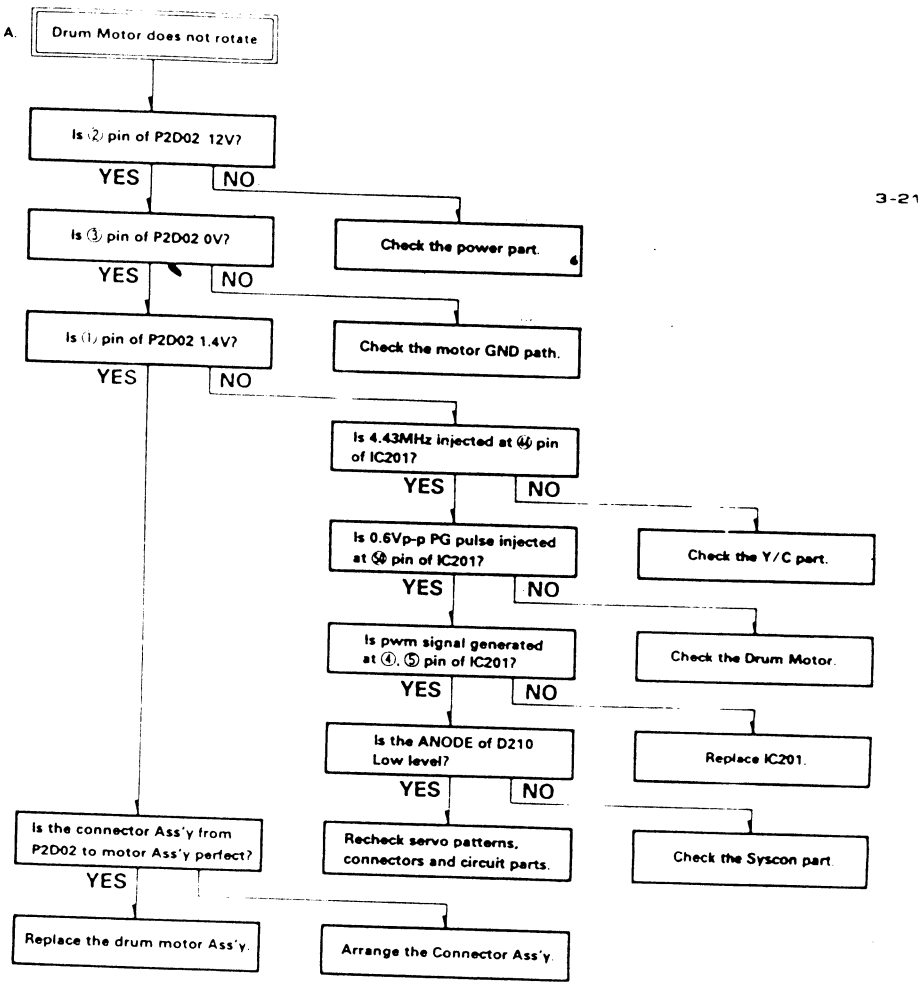

Is -32V applied to Digitron Grid voltage and IC601 pin ⑪?
YES
NO
Is -30V inputted to P5107 pin ④?
YES
NO
Is AC 1.6V of Digitron inputted? (Digitron pin ①,②,㉝,㉞?
YES
NO
Check the connector contact point P5107 ↔ P1501.
Refer to Power part.
Is AC 1.6V inputted to P5107 pin ⑥,⑧ and P5607 pin ②, ③?
YES
NO
Does the oscillation appear at IC601 pin ㊷, ㊸?
NO
YES
Check the connector contact point P5107 ↔ P1501.
Refer to Power part.
Is 5V inputted to IC601 pin ㉜?
NO
YES
Confirm whether Digitron is damaged or not.
Is REG. 5V inputted to P6501 ① and 5VA to pin ⑦?
YES
NO
Replace IC601.
Check the connector contact point. P6501 ↔ P5606.
Refer to Power part.

D. Tape placing is poor

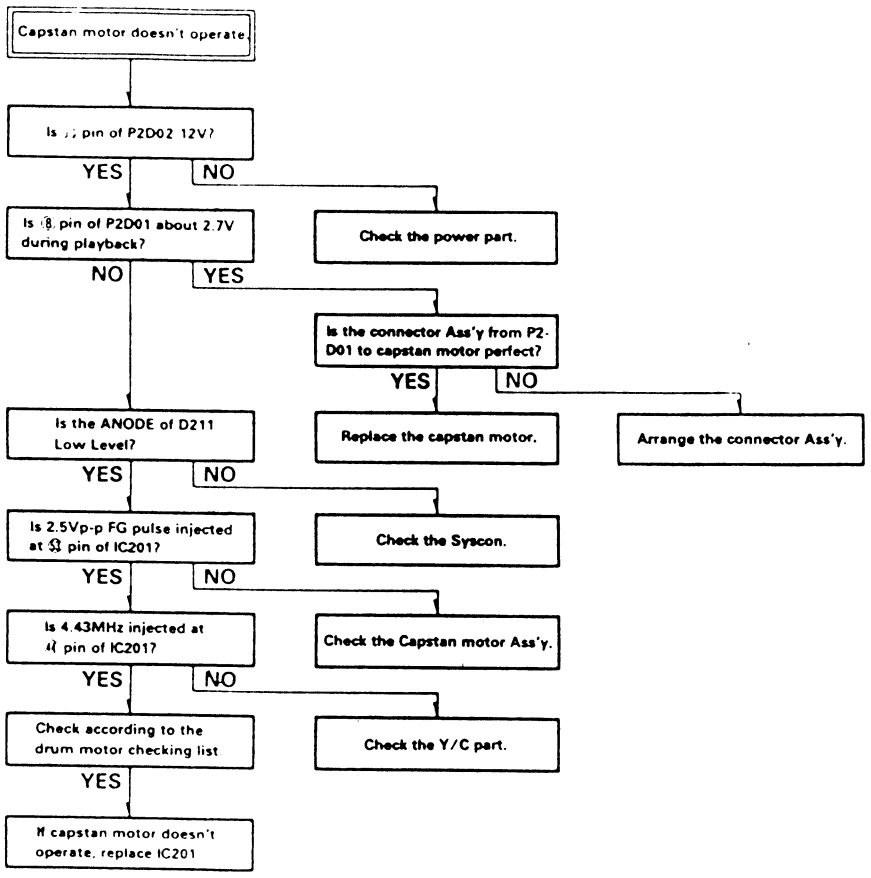


5. Servo Circuit

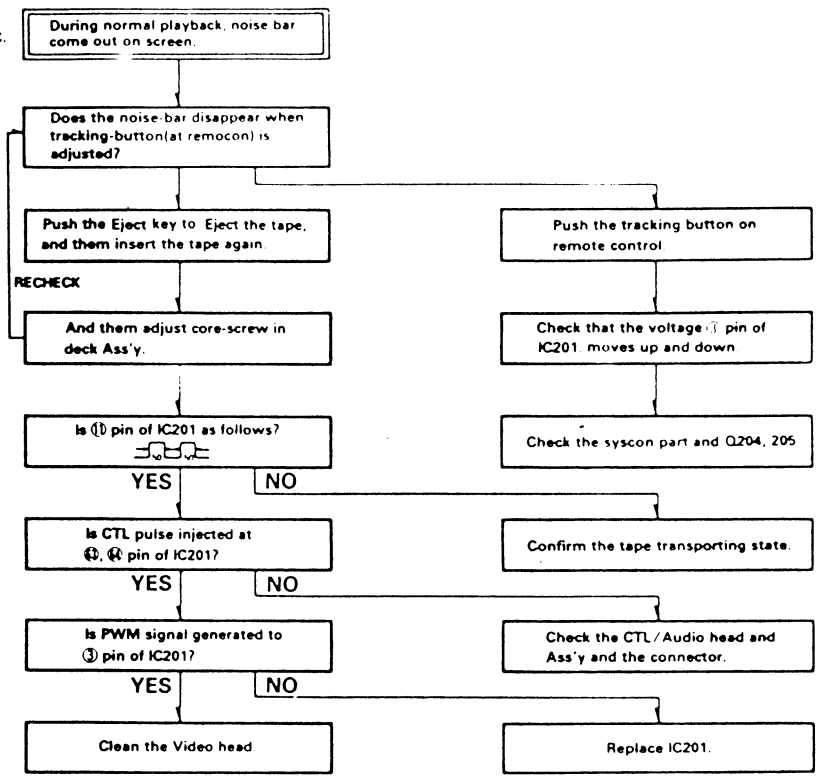
A. Drum Motor does not rotate



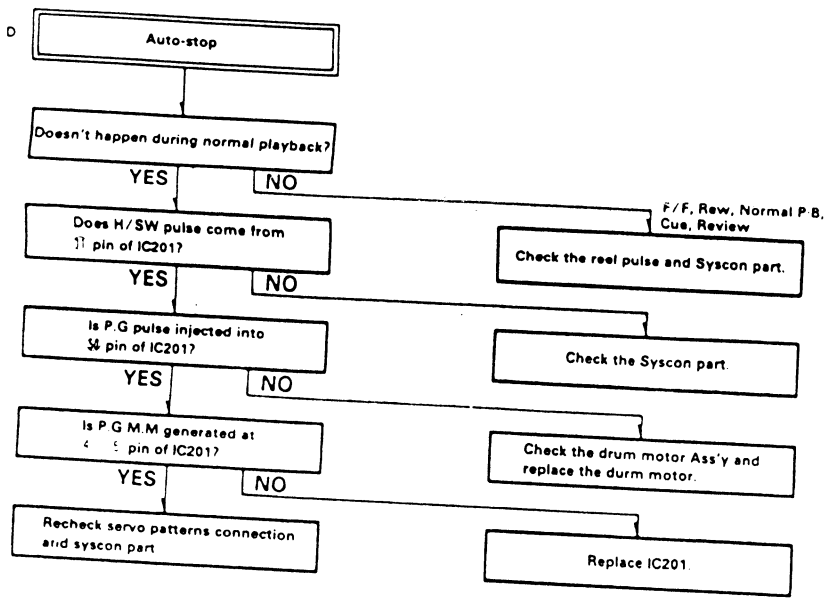
B



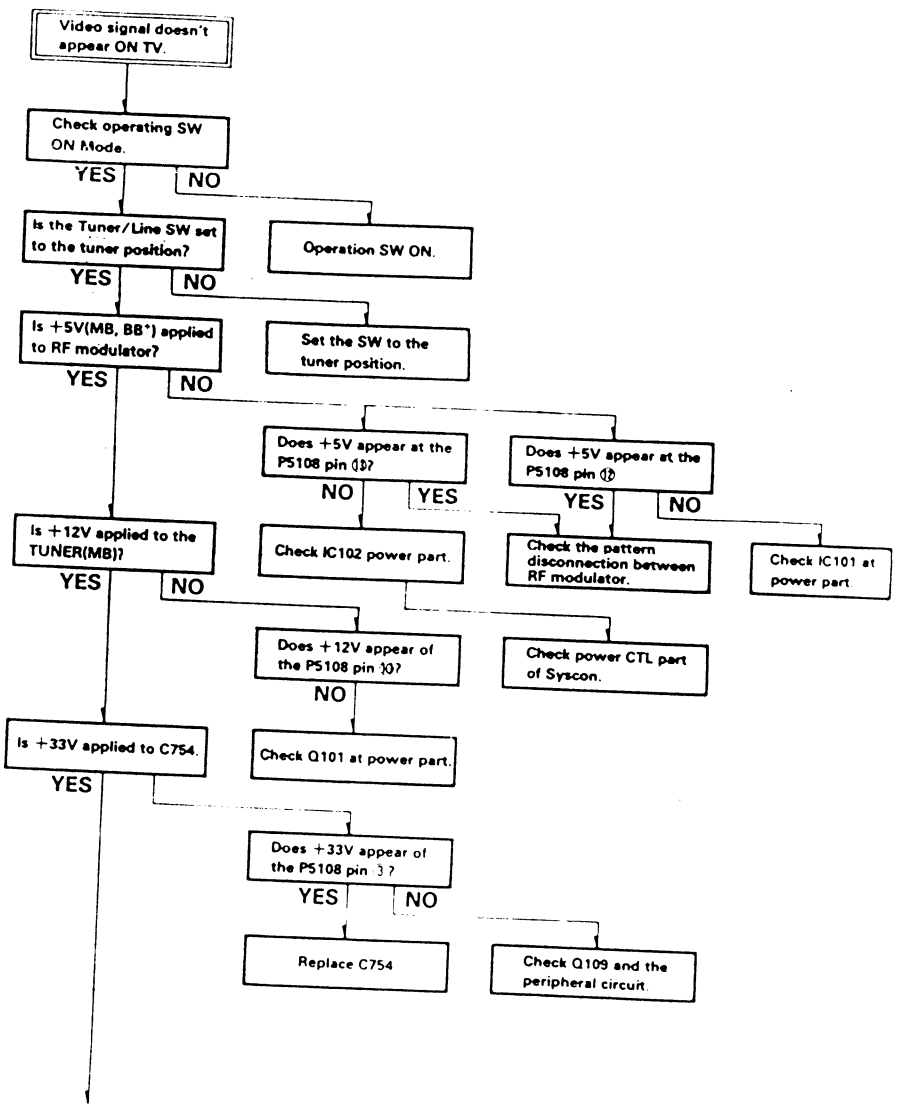
C.

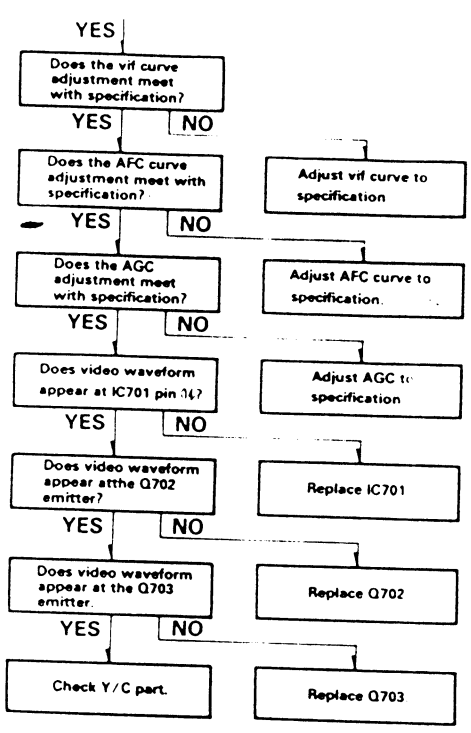

During normal playback, noise bar come out on screen.
Does the noise-bar disappear when tracking-button(at remocon) is adjusted?
Push the Eject key to Eject the tape, and them insert the tape again.
Push the tracking button on remote control.
RECHECK
And them adjust core-screw in deck Ass'y.
Check that the voltage ⑦ pin of IC201 moves up and down.
Is ⑪ pin of IC201 as follows?
Check the syscon part and Q204, 205
YES
NO
Is CTL pulse injected at ⑫, ⑬ pin of IC201?
Confirm the tape transporting state.
YES
NO
Is PWM signal generated to ③ pin of IC201?
Check the CTL/Audio head and Ass'y and the connector.
YES
NO
Clean the Video head.
Replace IC201.

D


Auto-stop
Doesn't happen during normal playback?
YES
NO
F/F, Rew, Normal P.B, Cue, Review
Does H/SW pulse come from ⑰ pin of IC201?
Check the reel pulse and Syscon part.
YES
NO
Is P.G pulse injected into ㉔ pin of IC201?
Check the Syscon part.
YES
NO
Is P.G.M.M generated at ㊷ pin of IC201?
Check the drum motor Ass'y and replace the durm motor.
YES
NO
Recheck servo patterns connection arid syscon part
Replace IC201.

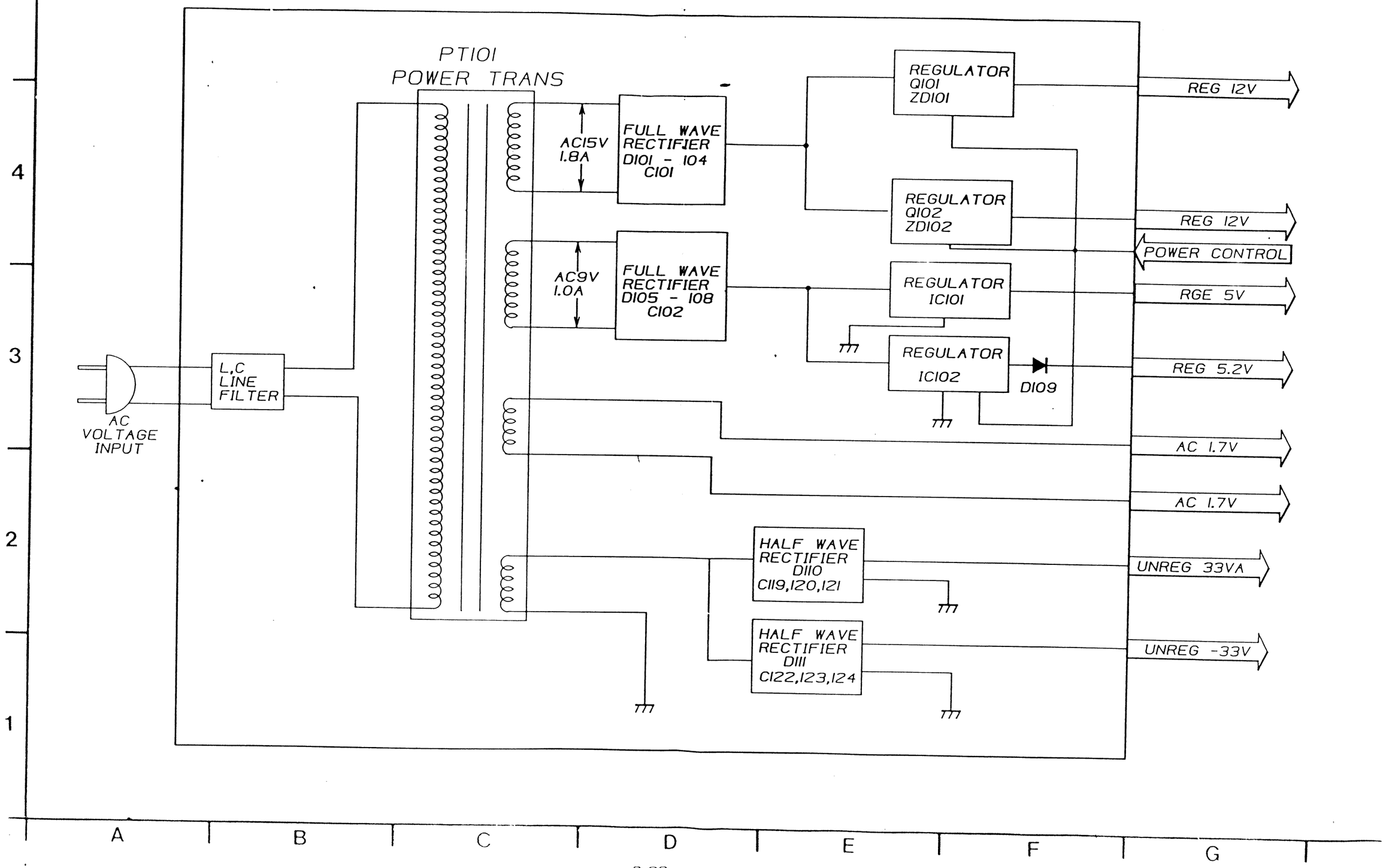
6. Tuner/IF Circuit



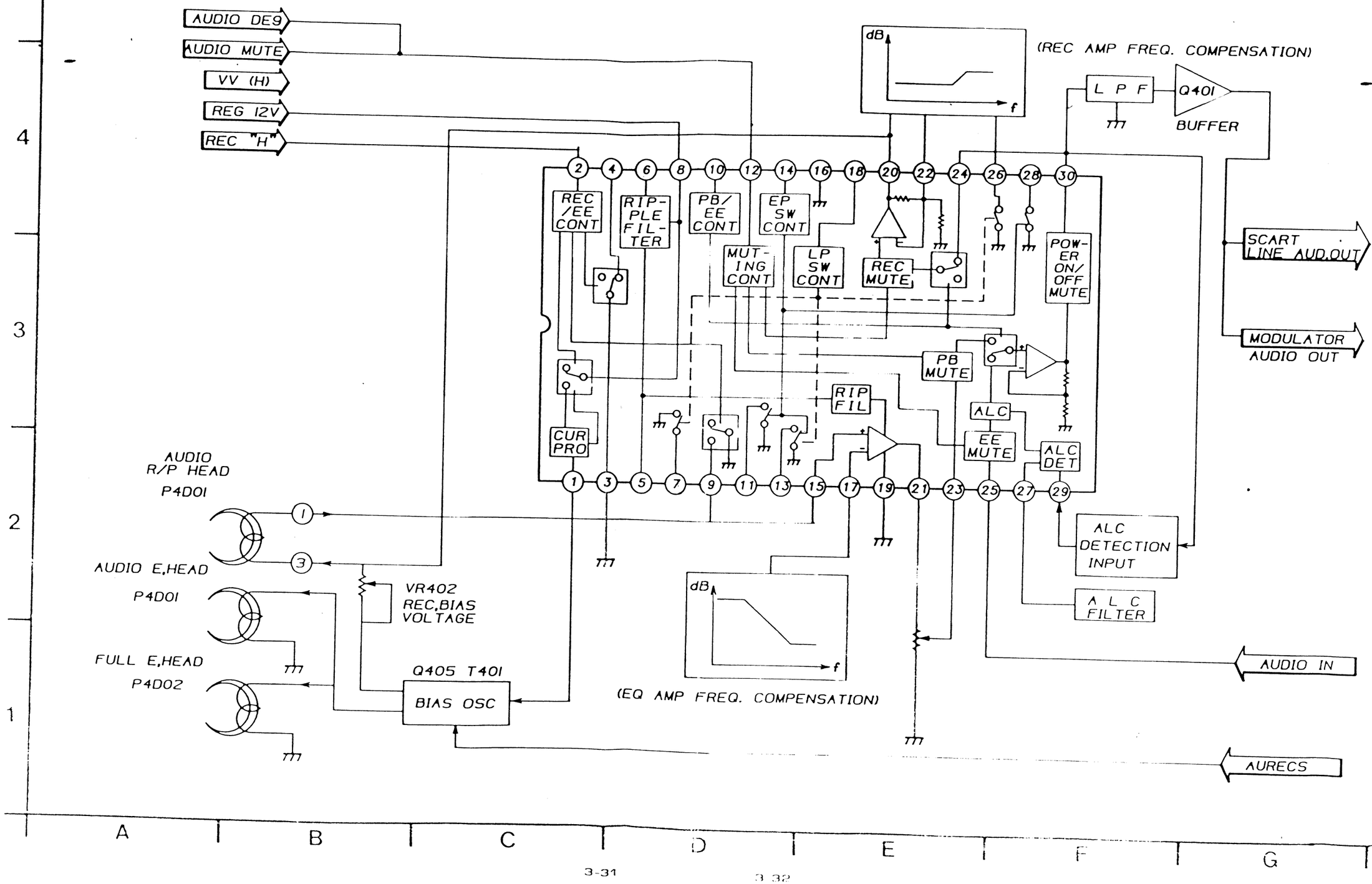


BLOCK DIAGRAM

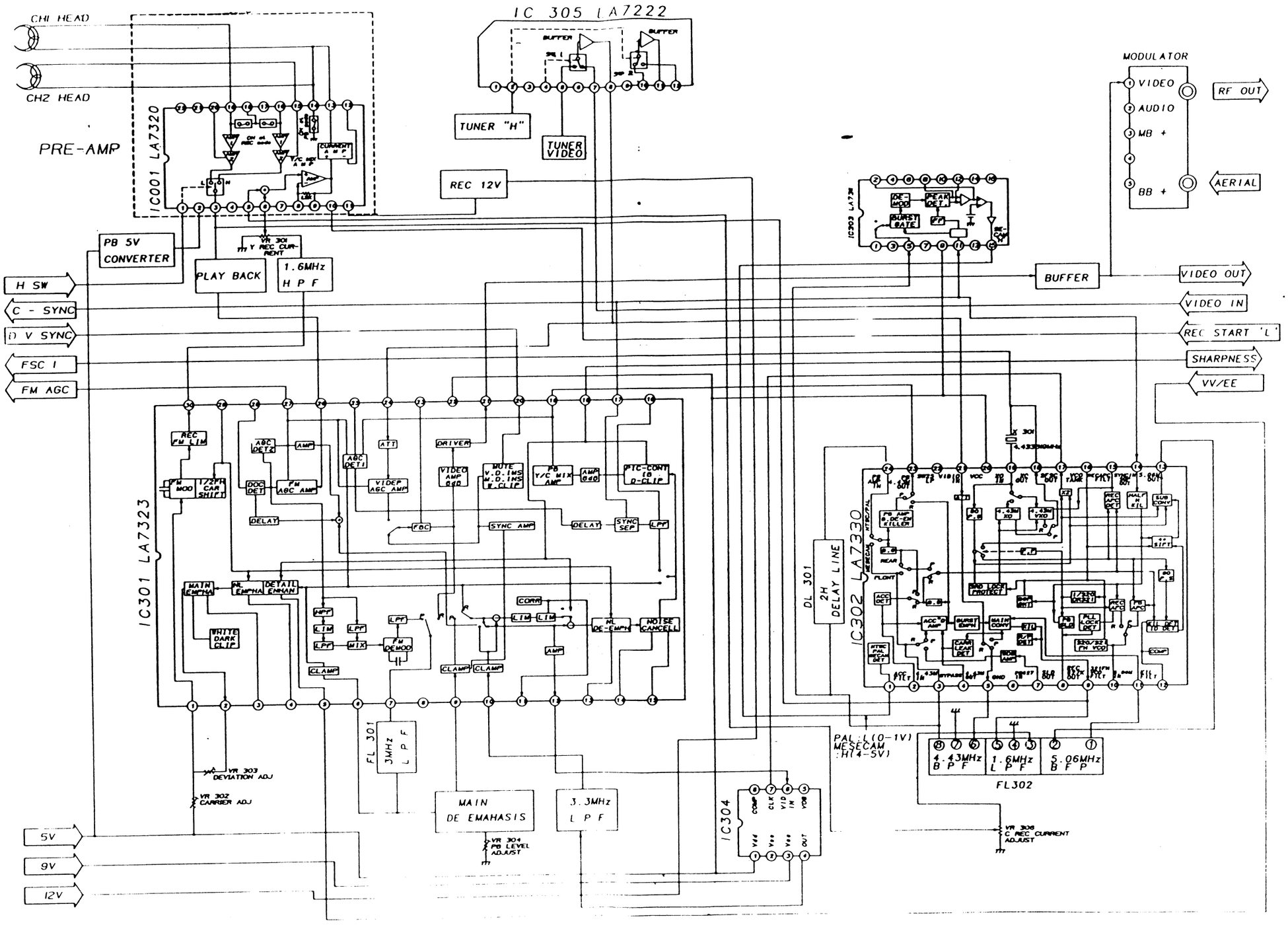
1. Power Block Diagram



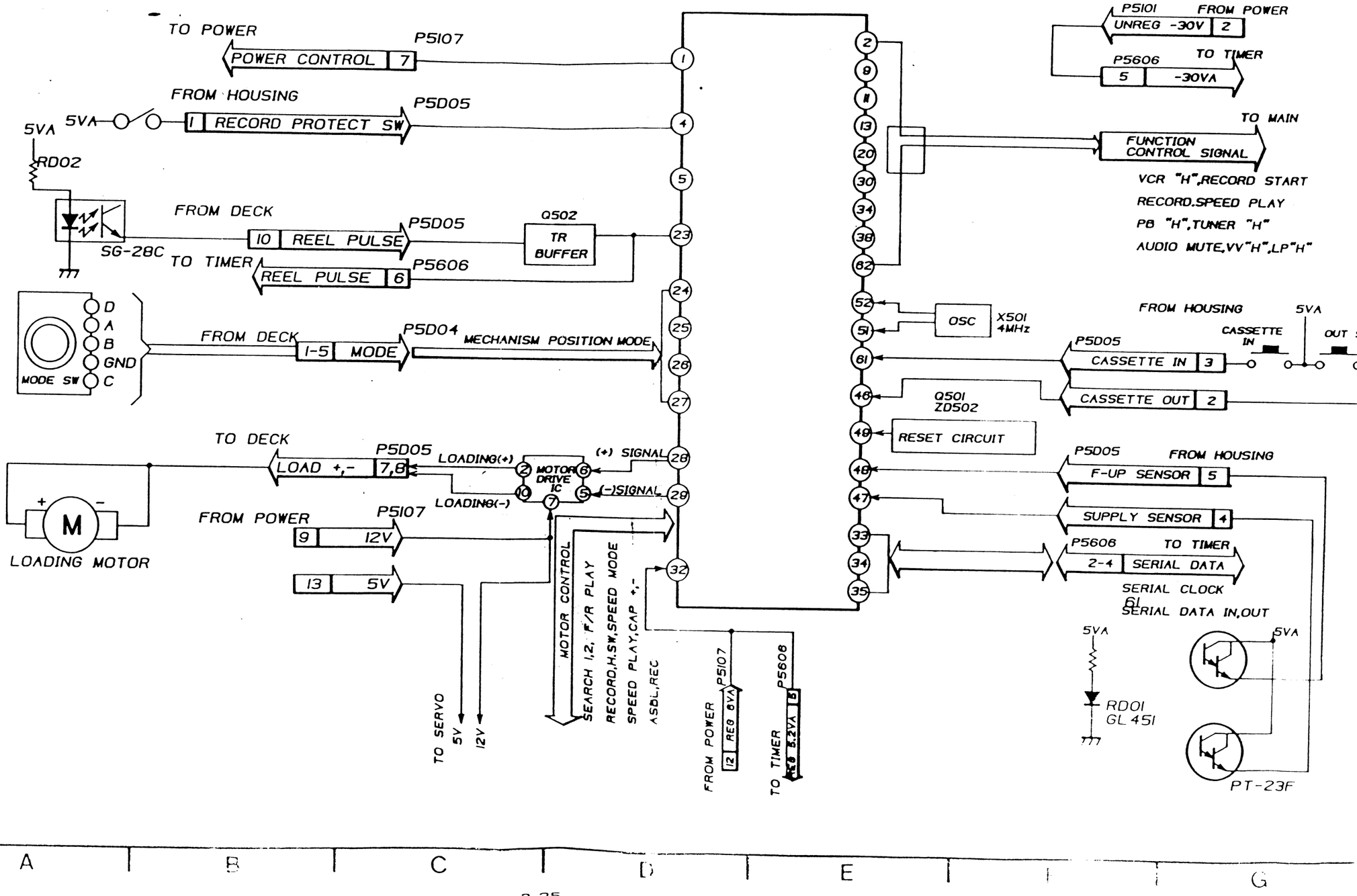
2. Audio Block Diagram



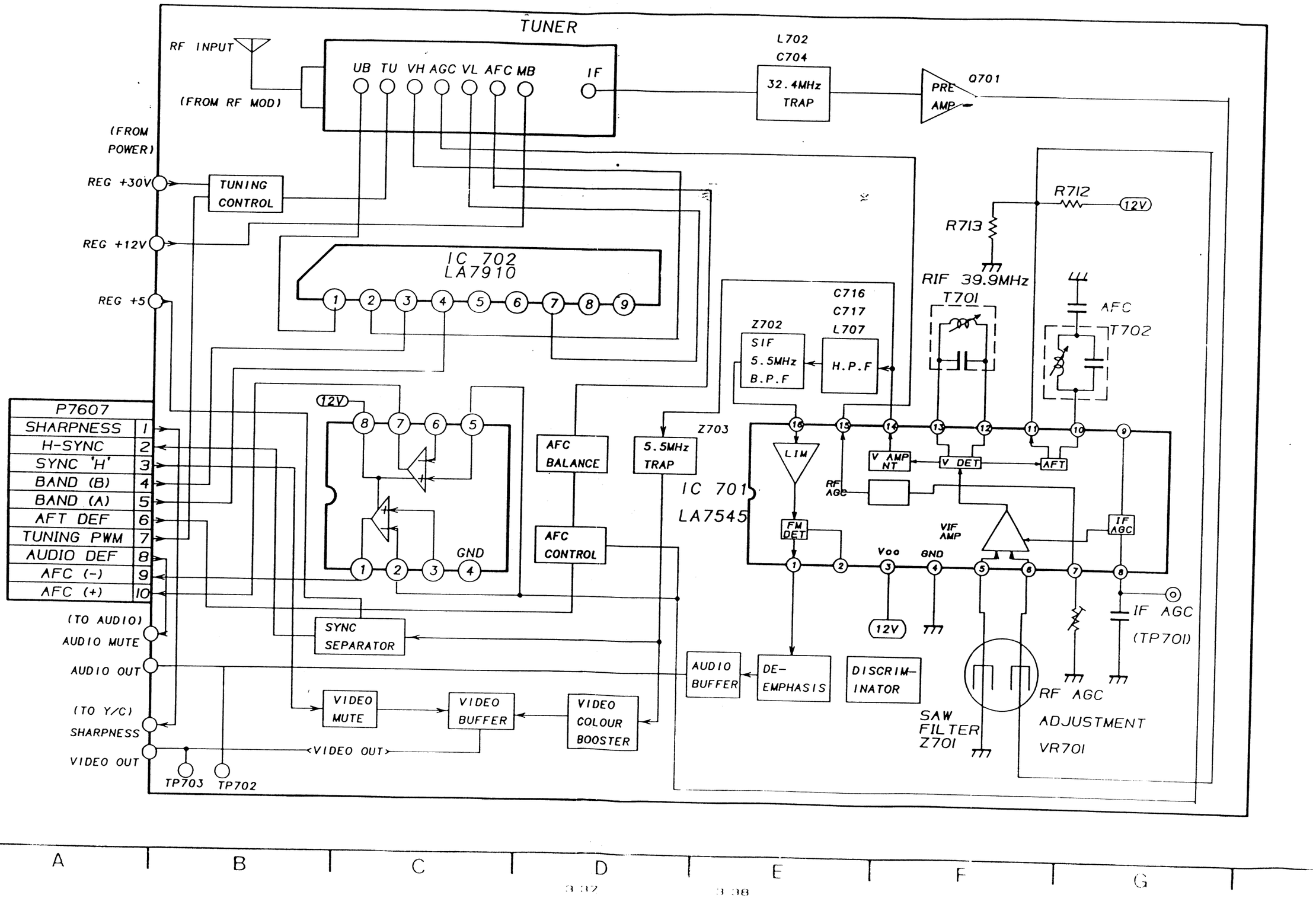
3. Y/C Block Diagram



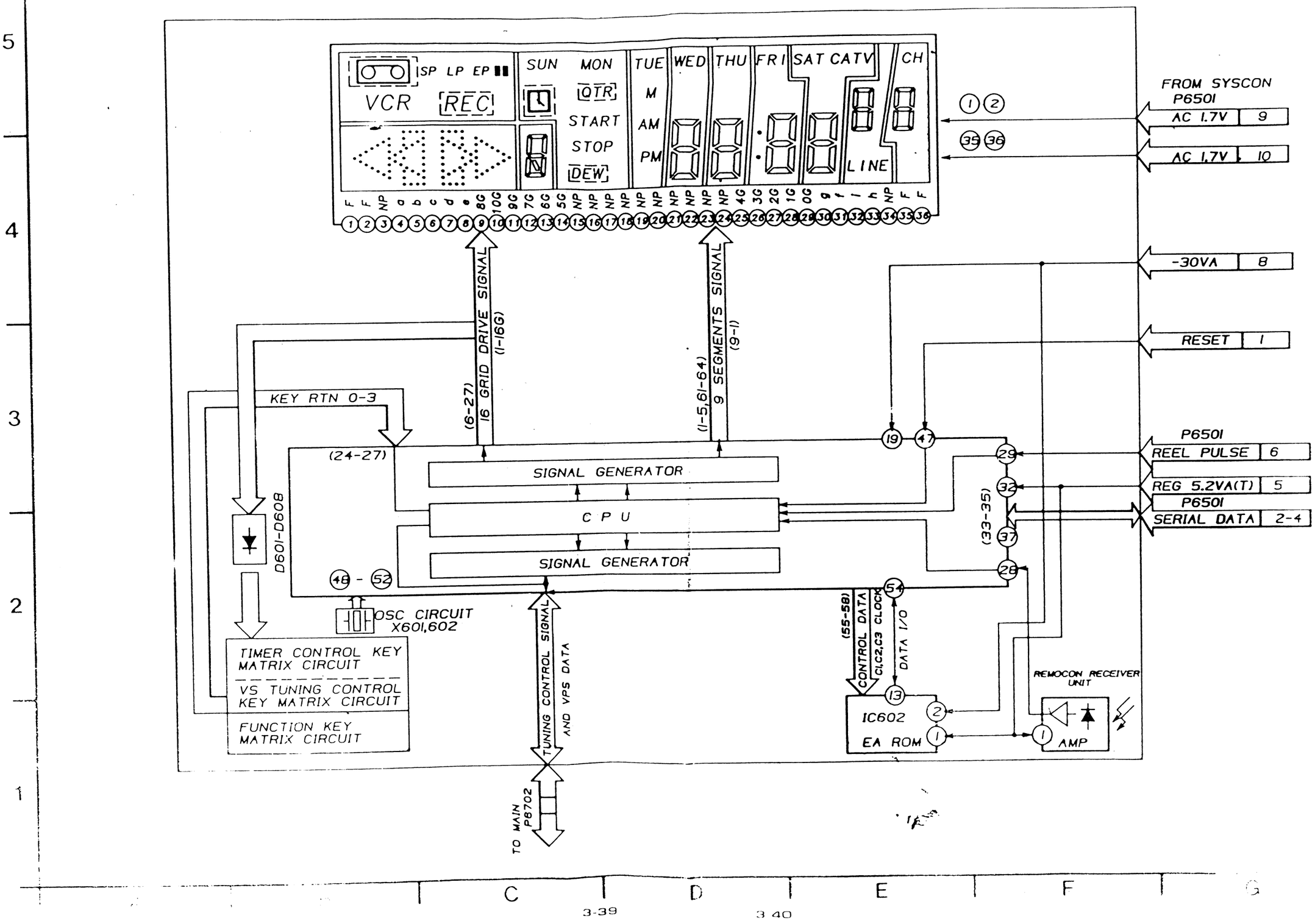
4. Servo / System control Block Diagram



5. Tuner/IF Block Diagram

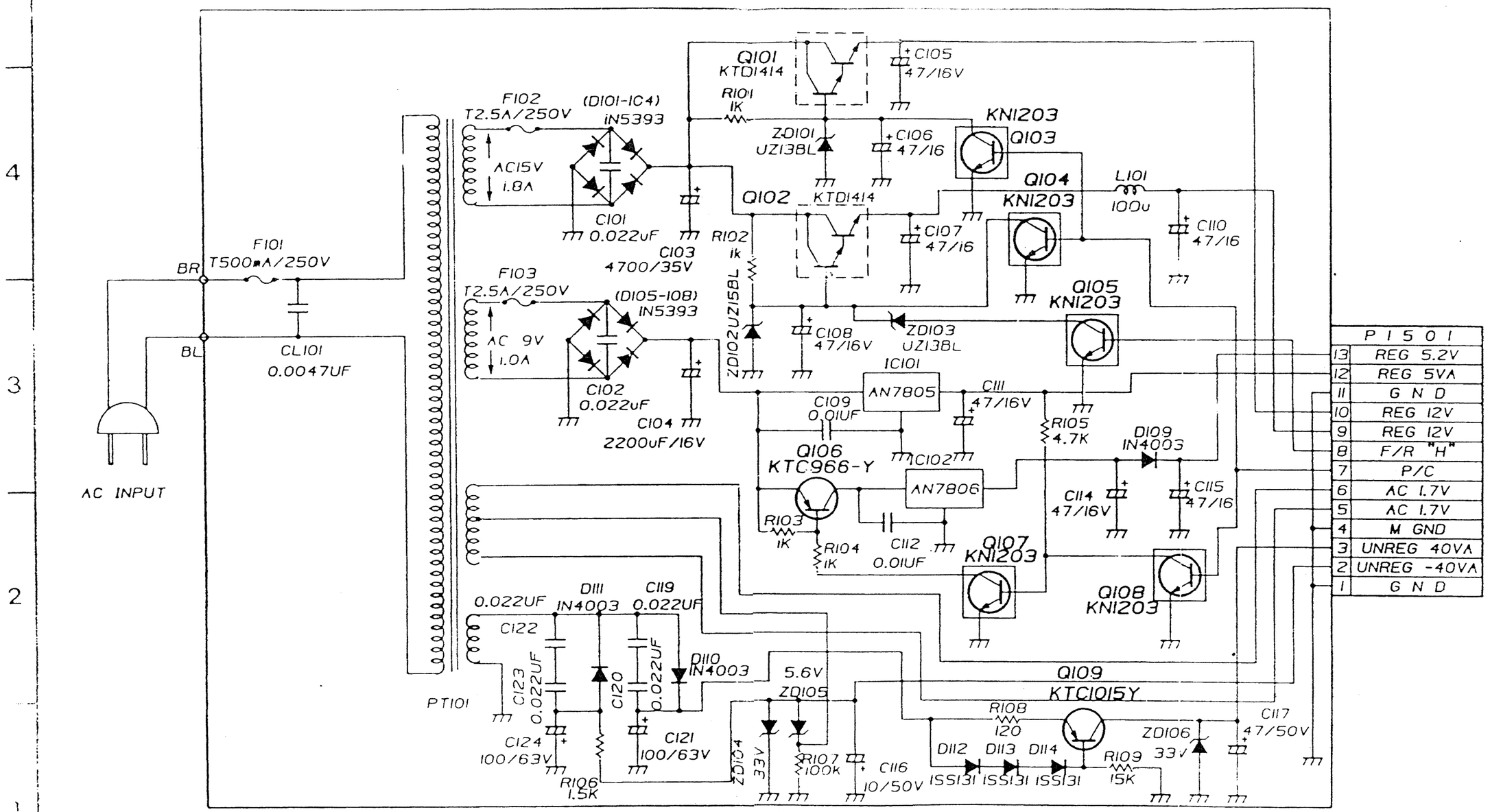


6. Timer Block Diagram

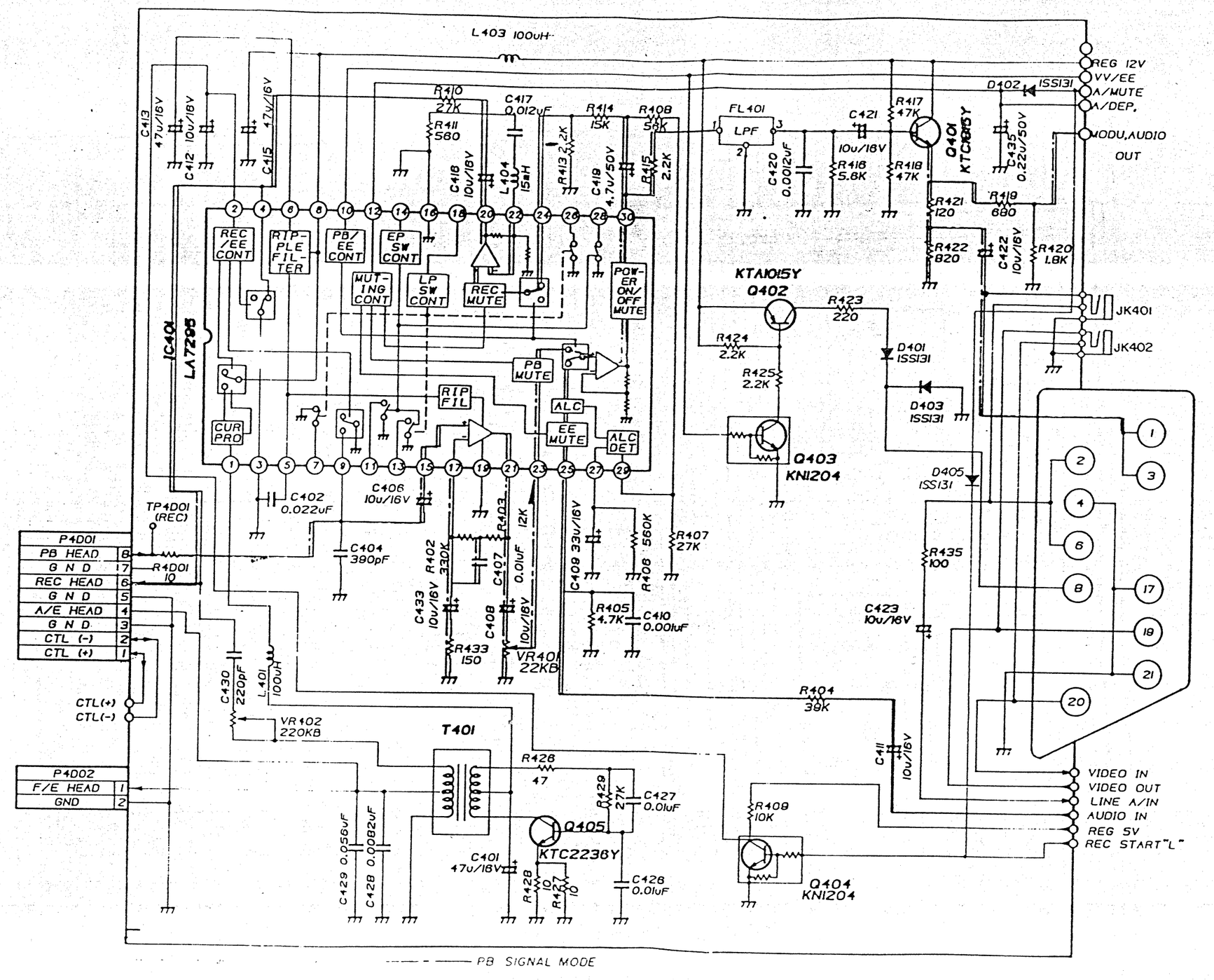


CIRCUIT DIAGRAM

1. Power Circuit Diagram



2. Audio Circuit Diagram



EE/REC

	IC401 LA7295				
1	0/10.3	12	0/0	23	0 0
2	0/5	13	0/0	24	0 0
3	0/0	14	0/0	25	0/0
4	0/0	15	2.5/2.2	26	0/0
5	8/7.8	16	0/0	27	0.3 0
6	9/8.6	17	2.5/2.2	28	0 0
7	0/0	18	0/0	29	0 0
8	12/15.5	19	0/0	30	2.5 2
9	0/0	20	4/3.5		
10	0/0	21	2.5/2.3		
11	0/0	22	1.5/1.5		

PB/REC

	TR			
	B			
Q401	5.5/5.5	12	12	5.5
Q402	11/12	0/12		5 12
Q403	5/0	0/12		0 0
Q404	5/0	0/5		0 0
Q405	0/0.5	0/10		0 0.5

SCART PIN SIGNAL NAME

1) 3), AUDIO OUT

2) 6), AUDIO IN

8), PB 12V

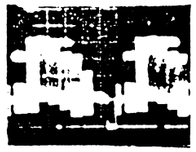
20), VIDEO IN

19), VIDEO OUT

4) 17) 21), GROUND

• Y/C Oscilloscope Waveform

(1)



REC
VIDEO Out Put
20μs/div, 20mV/div

(2)

REC
IC301 2 pin
White Dark Line
20μs/div, 20mV/div

(3)

REC
IC301 30 pin
FM Modulation Out Put
0.1μs/div, 50mV/div

(4)

REC
IC302 6 pin
0.1μs/div, 50mV/div

(5)

REC
IC302 5 pin
20μs/div, 20mV/div

(6)

REC
IC302 3 pin
4.43 MHz BPF Out Put
20μs/div, 5mV div

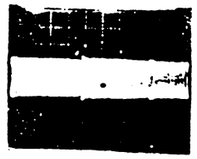
(7)

REC
IC302 23 pin
REC Color Out Put

(8)

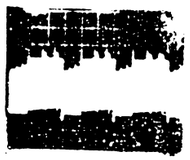
IC302 11 pin
5.06MHz Out Put
20μs/div, 5mV div

(9)



PB
RF TP
5ms/div, 20mV/div

(10)



PB
IC301 7 pin
Demodulator Out Put
20μs/div, 50mV/div

(11)

PB
3MHz BPF Out Put
20μs/div, 10mV/div

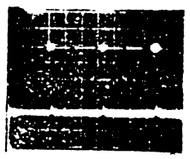
(12)

PB
IC301 9 pin
20μs/div, 20mV div

(13)

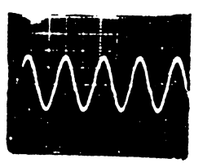
PB
IC301 14 pin
20μs/div, 10mV div

(14)



PB/REC
IC301 17 pin
H SYNC
20μs div, 1V div

(15)

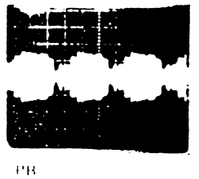


PB/REC (2 fsc)
IC304 7 pin
10mv/div, 50μs/div

(16)

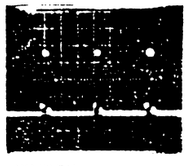
PB
IC302 7 pin
20μs/div, 10mV div

(17)



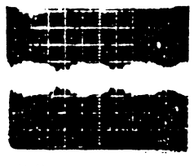
PB
IC302 24 pin
20μs/div, 10mV/div

(18)



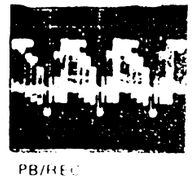
PB/REC
IC302 14 pin
H SYNC input
20μs div, 1V div

(19)



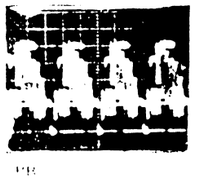
PB
IC301 19 pin
Color Out Put
20μs/div, 20mV/div

(20)



PB/REC
IC301 21 pin
20μs/div, 50mV div

(21)

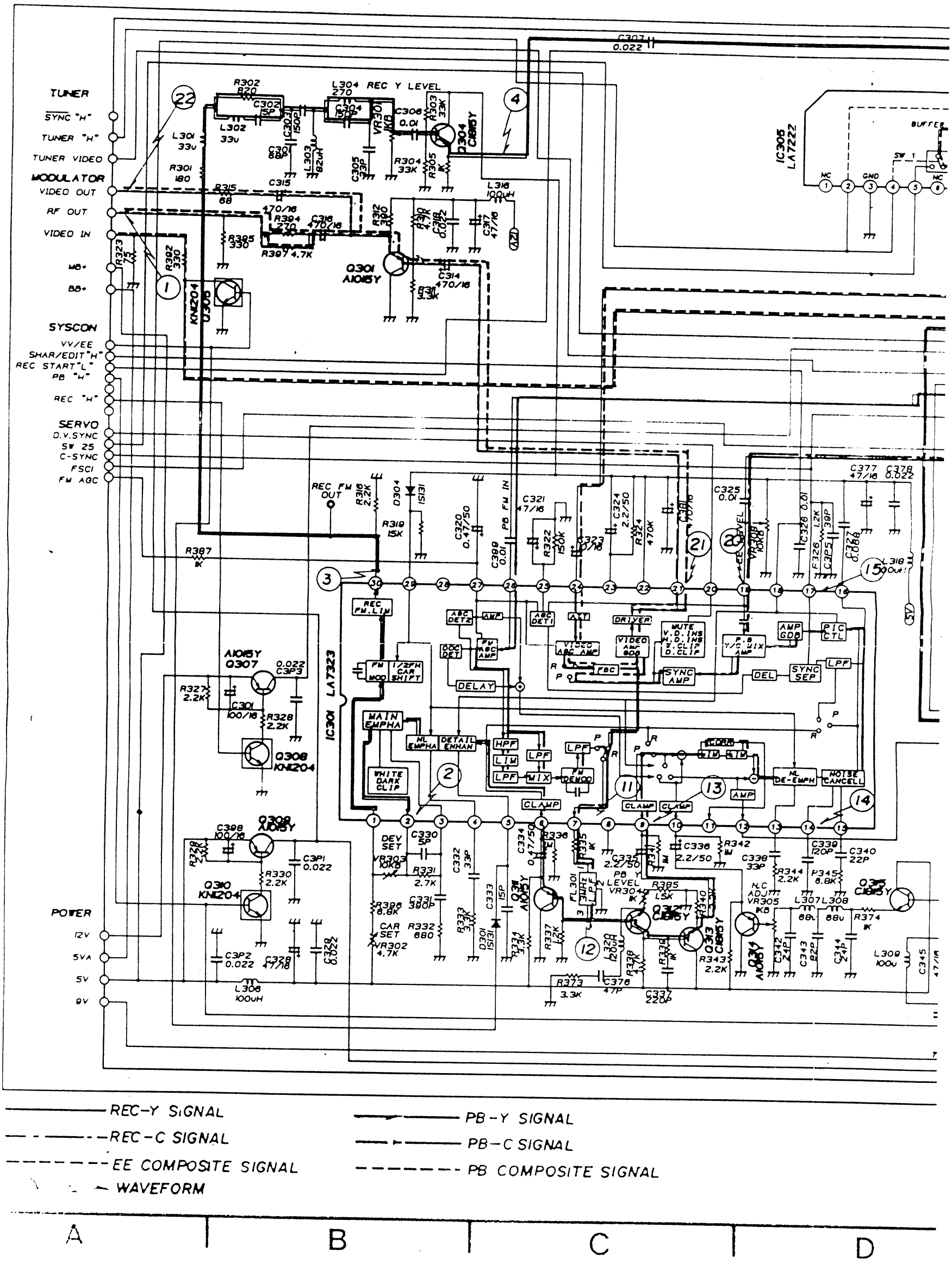


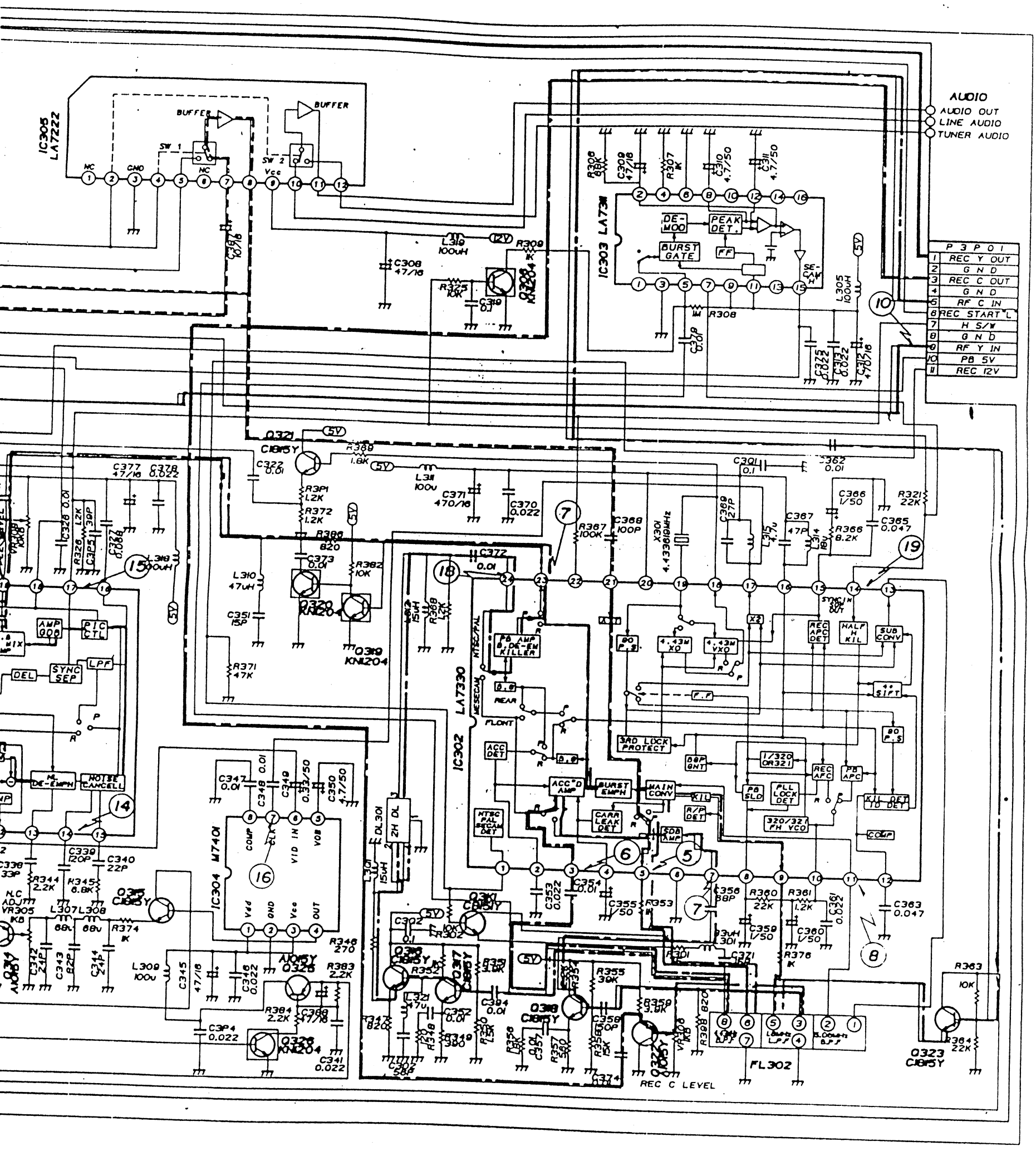
PB
VIDEO TP
VIDEO Out Put
5ms/div, 20mV div

IC NO / MODE / Pin NO	IC301 PB	IC301 REC	IC302 PB	IC302 REC	IC303 PB	IC303 REC	IC304 PB	IC304 REC	IC305 PB	IC305 REC
1	3.67	2.38	0.16	0.17	3.97	3.97	9.12	0.01	0.13	0.01
2	2.59	2.67	2.08	1.41	0.04	0.05	0.01	0.01	4.92	0.02
3	2.19	2.67	3.10	3.1	0	0	9.12	0.01	0.01	0.01
4	2.76	3.49	0.05	2.45	0.40	0.40	3.37	0.01	4.92	0.02
5	4.49	2.86	2.60	1.61	0.02	0.02	3.45	3	8.0	8.07
6	1.13	3.52	0	0	0	0	2.59	0.01	0.06	0.09
7	2.47	2.82	3.10	3.1	0.58	0.49	1.73	0.01	8.06	8.02
8	0.01	0.01	2.69	2.7	2.36	2.24	5.31	0.08	7.33	7.34
9	3.42	0.94	2.08	1.82	4.87	4.88			12.0	12.09
10	3.23	3.23	2.70	2.5	0	0			8.05	8.01
11	0.06	3.59	2.53	2.5	4.87	4.88			7.34	7.34
12	2.98	3.07	2.04	1.9	2.37	2.27			8.01	8.06
13	3.24	4.40	4.54	4.5	14.8	0.07				
14	3.23	4.40	0.56	0.49	0	0.01				
15	4.06	4.44	2.28	2.29	0.17	0.17				
16	3.44	3.51	4.90	4.90	1.27	0.57				
17	0.34	0.35	4.89	4.90						
18	2.49	2.50	2.27	3.0						
19	4.26	4.29	3.80	3.81						
20	0	0	4.89	4.9						
21	2.45	2.65	1.61	1.62						
22	4.95	4.93	2.53	2.54						
23	3.05	3.38	1.93	2.32						
24	3.17	3.17	3.3	0.07						
25	3.88	2.99								
26	3.60	4.00								
27	0.98	1.47								
28	0.02	0.01								
29	3.40	4.42								
30	4.14	3.52								

Terminal / MODE / TR NO.	EMITTER PB	EMITTER REC	COLECTOR PB	COLECTOR REC	BASE PB	BASE REC
Q301	5.75	5.7	0.01	0	5.08	5.0
Q304	1.60	1.6	4.90	4.9	2.24	2.26
Q305	0.01	0.01	0.01	0.48	4.9	0.42
Q306	0	0	3.96	3.96	0.15	0.31
Q307	12.22	12.1	0	12.0	12.22	11.28
Q308	0.01	0	12.21	0.09	0.92	4.8
Q309	5.05	5.07	4.96	0	4.28	5.07
Q310	0	0	0	5.07	4.9	0.03
Q311	1.81	2.11	0	0	1.22	1.51
Q312	0.02	0.92	3.54	2.92	2.22	1.51
Q313	2.92	2.31	5.04	5.06	3.54	2.93
Q314	0.52	0.64	0.01	0.01	0.91	0.02
Q315	2.77	0.05	5.04	5.06	3.4	0.15
Q316	2.43	2.42	4.89	4.9	3.08	3.0
Q317	0.72	0.71	0.05	3.09	0.05	3.25
Q318	0.72	0.72	2.25	2.25	1.35	1.25
Q319	5.06	0	4.96	0.06	4.28	4.23
Q320	0	0	0.06	0.01	0.07	0.06
Q321	1.63	2.32	4.89	4.9	2.21	0.02
Q322	1.60	0.83	0	0	0.99	1.22
Q323	2.46	0.54	4.96	0	3.14	0
Q325	9.25	0	9.21	0.01	8.49	9.26
Q326	0	0.03	0.08	9.5	0.8	9.03
Q361	3.8	0.9	2.6	0.6	0.17	9.12

3. Y/C Circuit Diagram




IC305 LA7222
BUFFER
BUFFER
SW 1
SW 2
Vcc
AUDIO
AUDIO OUT
LINE AUDIO
TUNER AUDIO
P 3 P 0 1
1 REC Y OUT
2 G N D
3 REC C OUT
4 G N D
5 RF C IN
6 REC START L
7 H S/W
8 G N D
9 RF Y IN
10 PB 5V
11 REC 12V
IC303 LA7311
IC302 LA7330
IC304 M7401
DE-EMPH
PEAK DET.
BURST GATE
FF
SE-CAM
PB AMP & DE-EM KILLER
4.43M XO
4.43M VXO
90 P.S
180 P.S
SUB CONV
HALF H KIL
REC APC DET
SYNC SEP
LPF
AMP GCR
PIC CTL
NOISE CANCELL
ACC DET
ACC'D AMP
BURST EMPH
MAIN CONV
KIL
R/P DET
CARR LEAK DET
NTSC PAL SECAM DET
SAD LOCK PROTECT
PB SLD
FLL LOCK DET
320/327 FH VCO
REC APC
PB APC
KIL DET
ID DET
COMP
1/320 OR 321
2H DL
DL301
FL302
REC C LEVEL
X301 4.433618MHz
Q321 C1815Y
Q322 KN2204
Q323 C1815Y
Q324 KN2204
Q325 C1815Y
Q326 KN2204
Q327 C1815Y
Q328 C1815Y
Q329 C1815Y
Q330 C1815Y
Q331 C1815Y
Q332 C1815Y
Q333 C1815Y
Q334 C1815Y
Q335 C1815Y
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Q339 KN2204
L309 100u
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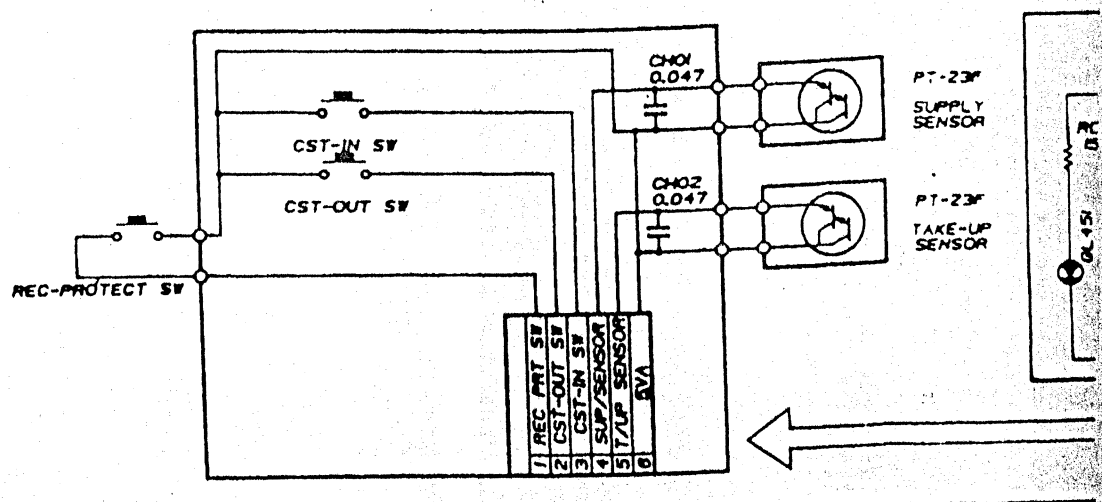
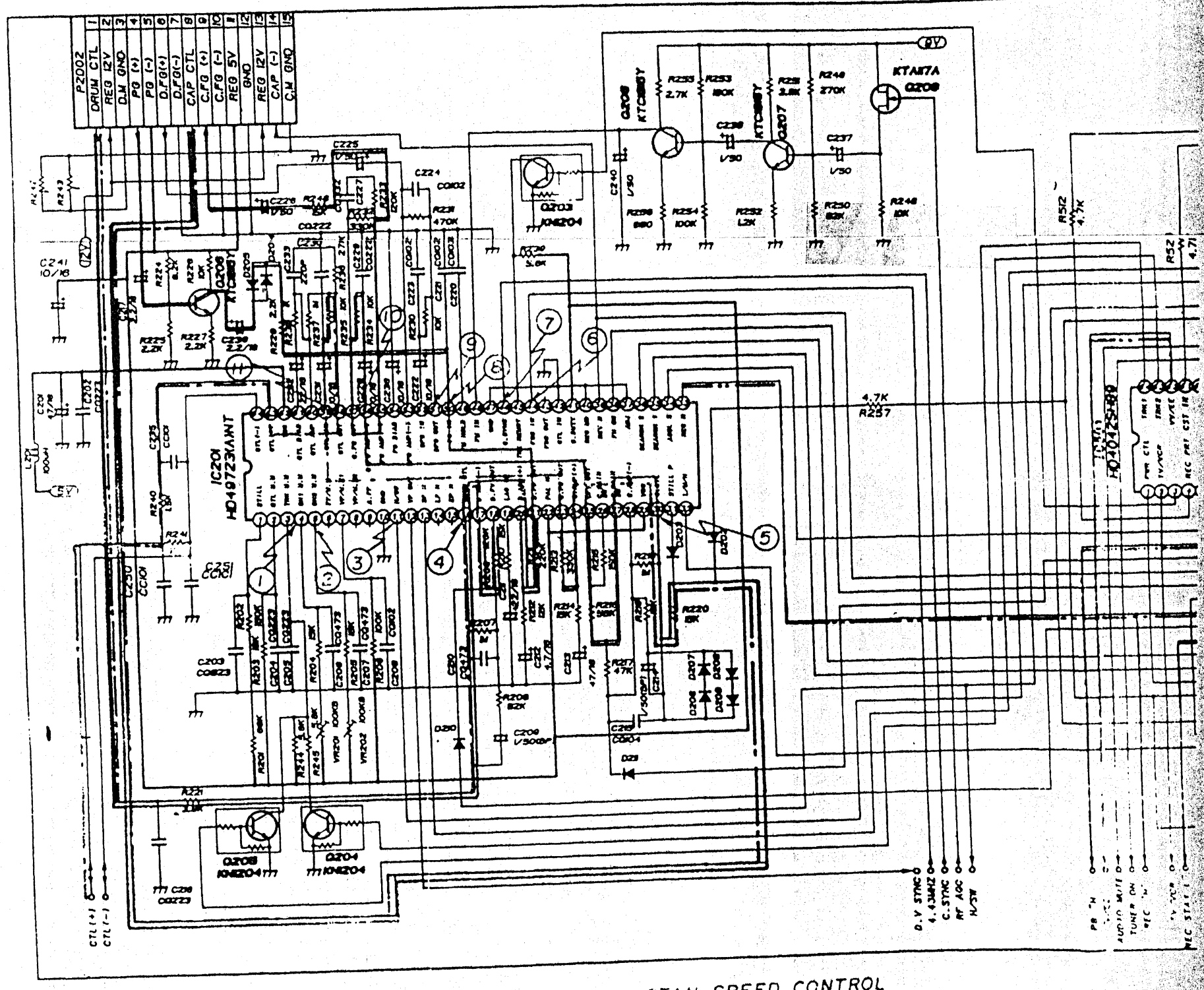
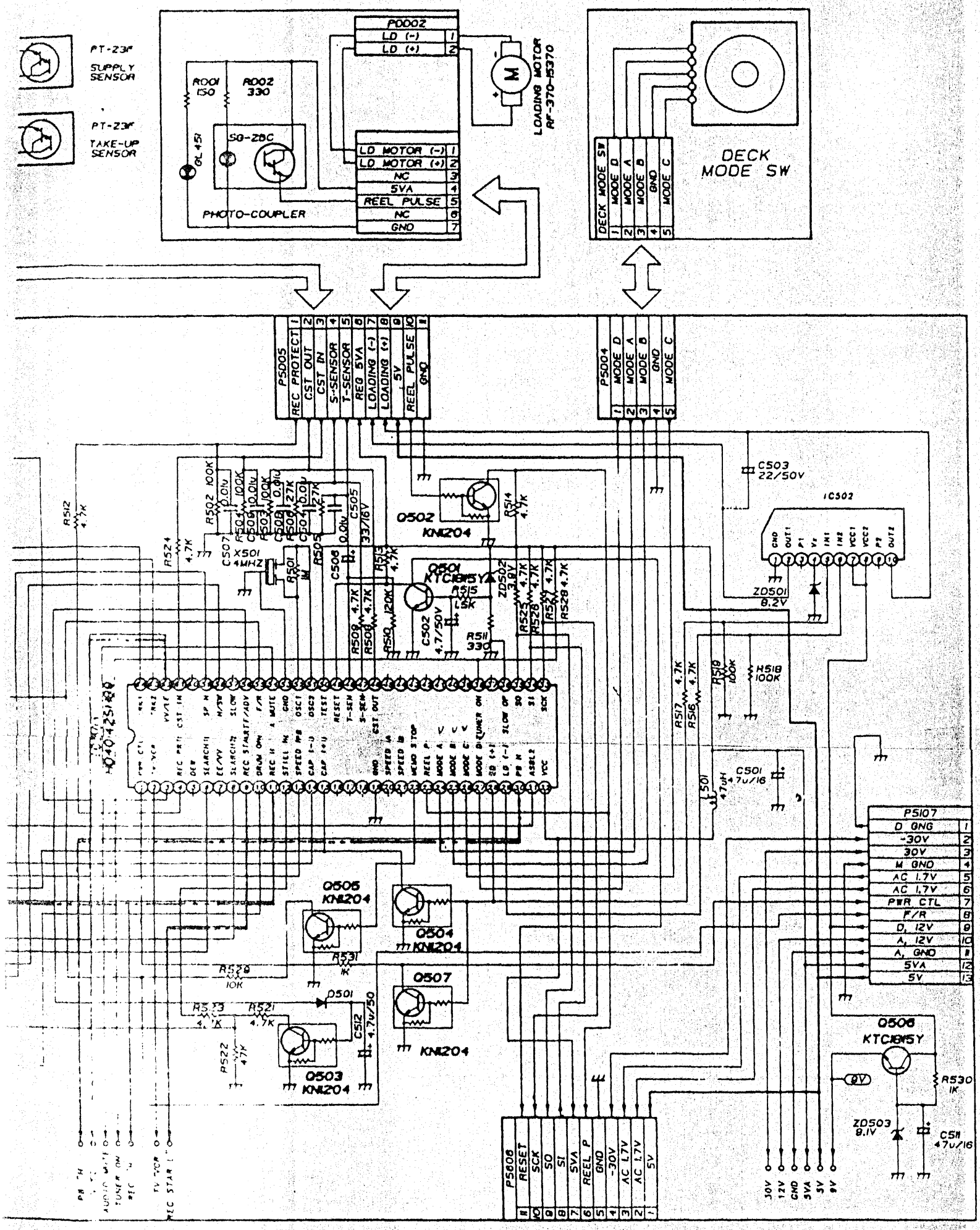
D E F G

4. Servo / System Control Circuit Diagram







IC No. / MODE / PIN No.	IC 501 STOP	PB	REC
1	0	0	0
2	5.02	5.02	5.02
3	0	0	0
4	0	0	0
5	0	0	0
6	0	0	-
7	4.98	0	4.98
8	0	0	0
9	4.90	4.90	0
10	4.96	0	0
11	0	0	4.92
12	0.47	0.47	0.47
13	0	0	0
14	0	0	0
15	4.96	0	0
16	0	0	0
17	0	0	0
18	0	0	0
19	0	0	0
20	0	0	0
21	0	0	0
22	0	0	0
23	-	P	P
24 A	5.02	0	0
25 B	0	5.02	5.02
26 C	5.03	5.02	5.02
27 D	0	0	0
28	0	0	0
29	0	-	-
30	0	-	-
31	5.04	5.04	5.04
32	P	P	-
33	P	P	P
34	P	P	P
35	5.04	5.04	5.04
36	5.03	5.02	5.02
37	5.03	5.02	5.02
38	5.03	0	5.02
39	0	0	-
40	0	0	-
41	0	0	-
42	0	-	-
43	0	-	-
44	0	-	-
45	5.04	5.04	-
46	0	0	-
47	0	0	-
48	0	0	0
49	0	0	0
50	5.04	5.04	5.04
51	2.27	2.27	2.27
52	2.46	2.46	2.46
53	0	0	-
54	0	0	-
55	0	0	-
56	0	0	-
57	0	0	-
58	0	-	-
59	0	-	-
60	5.05	-	-
61	0	0	-
62	0.44	4.88	-
63	5.02	5.02	-
64	0	0	-

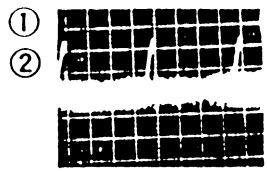
IC No. / MODE / PIN No.	IC 502 STOP	PB	REC
1	0	-	-
2	0.54	-	-
3	0.75	-	-
4	1.78	0.44	-
5	0	0	-
6	0	-	-
7	12.84	12.73	12.73
8	12.83	12.72	12.73
9	0.76	0.76	0.76
10	0.54	0.53	0.53

	EMITTER			COLLECTOR			BASE		
TOP	PB	REC	STOP	PB	REC	STOP	PB	REC
Q501	0	0	5.79	5.79	5.78	0	0	0
Q502	31.6	31.8	44	44	44	32.3	32.3	32.3
Q503	0	0	0	0	0	0	0	0
Q504	0	0	0.58	0.58	0.58	0	0	0
Q505	0	0	-	P	P	-	P	P
Q506	0	0	0	0	0	0	0	0
Q507	0	0	0	0	0	4.96	4.98	4.96

(* P:Pulse)

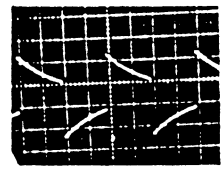
IC No. / MODE / PIN No.	IC 503 STOP	PB	REC
1	5.04	5.04	5.04
2	0	0	0
3	0	0	0

*SERVO Oscilloscope Waveform



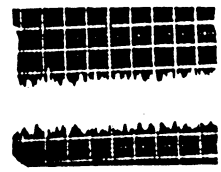
① ②

4 pin 5 pin
CH1, CH2 MM
1V/div
2.5Vp-p



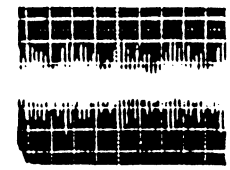
③

TP201 11 pin
Head Switching
2.5Vp-p



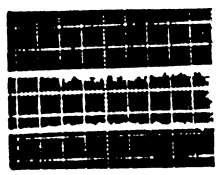
④

16 pin
Drum Motor Control
1.5Vp-p



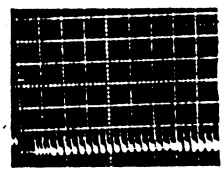
⑤

30 pin
Capstan Motor Control
2.5Vp-p



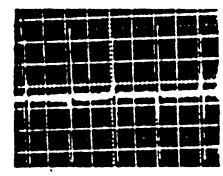
⑥

44 pin
FSC IN
2.5Vp-p



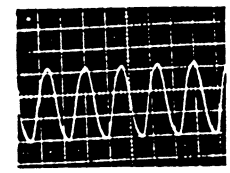
⑦

46 pin
C. SYNC IN
4Vp-p



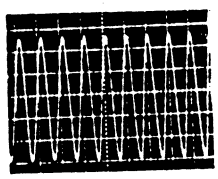
⑧

PG IN
50 pin
2.2Vp-p



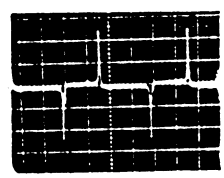
⑨

51 pin
D.FG OUT
2.7Vp-p



⑩

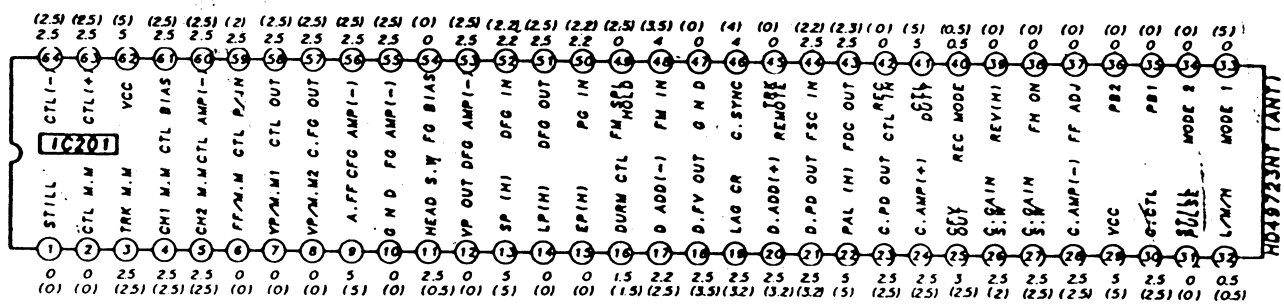
57 pin
C.FG OUT
2.5Vp-p



⑪

58 pin
CTL OUT
2.3Vp-p

*SERVO IC Voltage Sheet



STOP

A-24 5V
B-25 0V
C-26 5V
D-27 5V

* SERVO Transistor Voltage Sheet

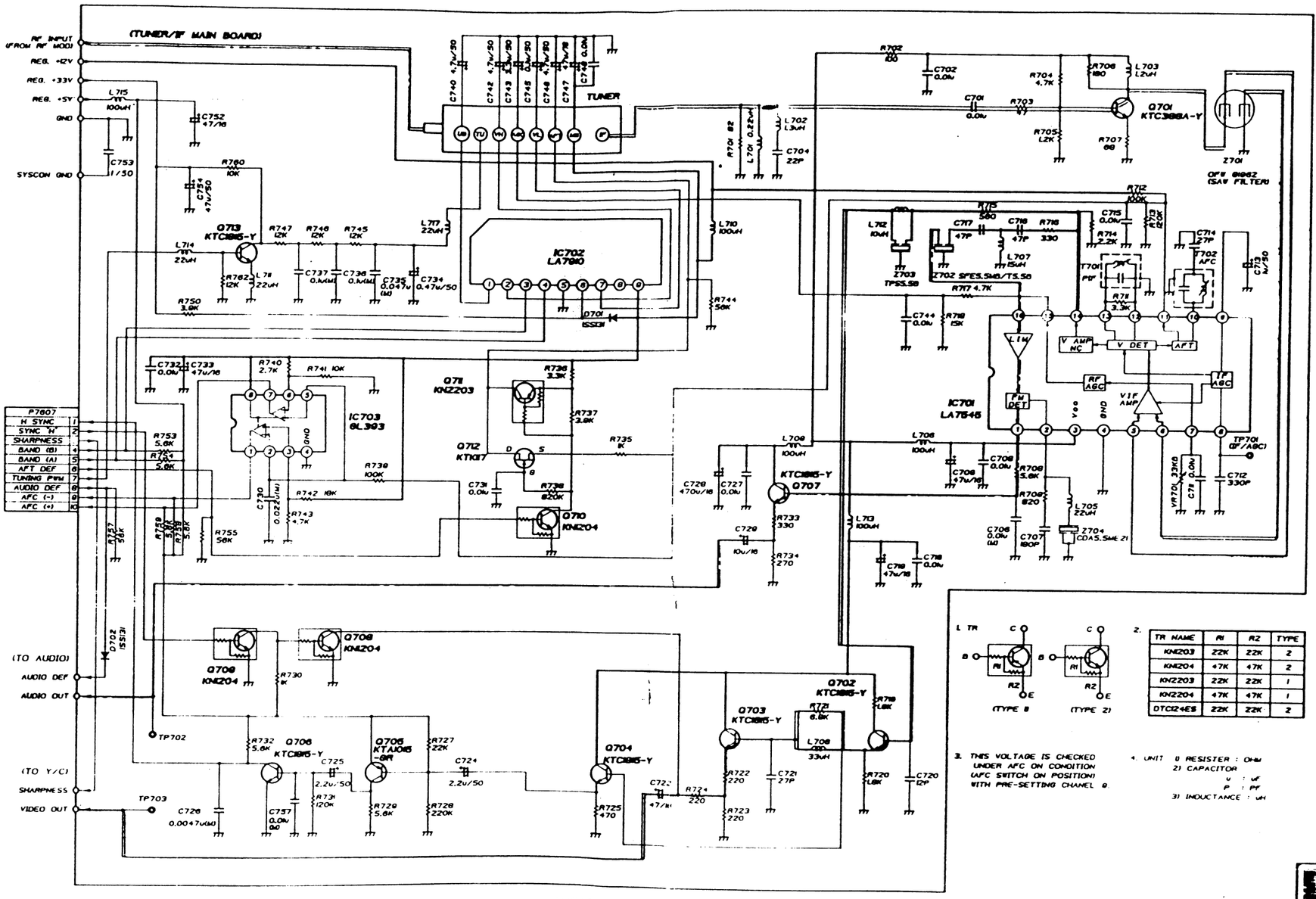
TR NO.	EMITTER		BASE		COLLECTOR	
	PB	REC	PB	REC	PB	REC
Q204	0	0	0	0	0	5
Q205	0	0	0	5	0	5
Q206	1	1	1.5	1.5	2.5	2.5

MEMO

27 - 4.6 V.
31 - 0
36 - 0
39 - 5
45 - 0.06
47 - 4 V
58. - 5 V
59. 5 V
60 - 0

5. Tuner/IF Circuit Diagram

MODEL:VCR-752E



5. IC/TR PIN VOLTAGE

IC701 (LA7645)

NO	VOLTAGE	NO	VOTAGE
1	5.45	8	8.53
2	5.01	10	8.05
3	11.57	11	5.48
4	0	12	8.56
5	4.45	13	8.56
6	4.45	14	4.84
7	3.23	15	8.28
8	8.53	16	4.84

IC703(BL393)

NO	VOTAGE	NO	VOLTAGE
1	0.08	5	5.47
2	5.47	6	8.1
3	2.38	7	0
4	0	8	11.55

IC702(LA7910)

BAND SEL. POSION			
NO	VHF L	VHF H	UHF
1	0.12	0.12	11.34
2	0	11.38	0.01
3	0	4.54	0
4	4.53	0	0
5	0	0	0
6	13.07	13.06	13.08
7	11.41	0	0
8	11.8	0	0
9	11.55	11.55	11.53

TRANSISTOR PIN/VOLTAGE

SYM/NO	B	C	E
Q701	1.80	10.09	1.07
Q702	4.21	3.53	3.52
Q703	2.85	8.75	3.52
Q704	3.52	8.75	2.85
Q705	5.07	8.85	5.02
Q706	3.68	4.52	0
Q707	5.22	8.78	4.55
Q708	0.07	1.85	0
Q709	4.88	0.1	0
Q710	0	11.54	0.01
Q711	11.54	11.5	11.57
Q712	5.51	8.05	5.51
Q713	0.43	8.86	0.03

L TR

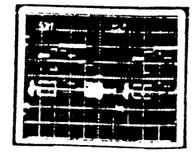
2.

TR NAME	R1	R2	TYPE
KN2203	22K	22K	2
KN2204	47K	47K	2
KN2203	22K	22K	1
KN2204	47K	47K	1
DTC124ES	22K	22K	2

3. THIS VOLTAGE IS CHECKED UNDER AFC ON CONDITION (AFC SWITCH ON POSITION) WITH PRE-SETTING CHANEL 9.

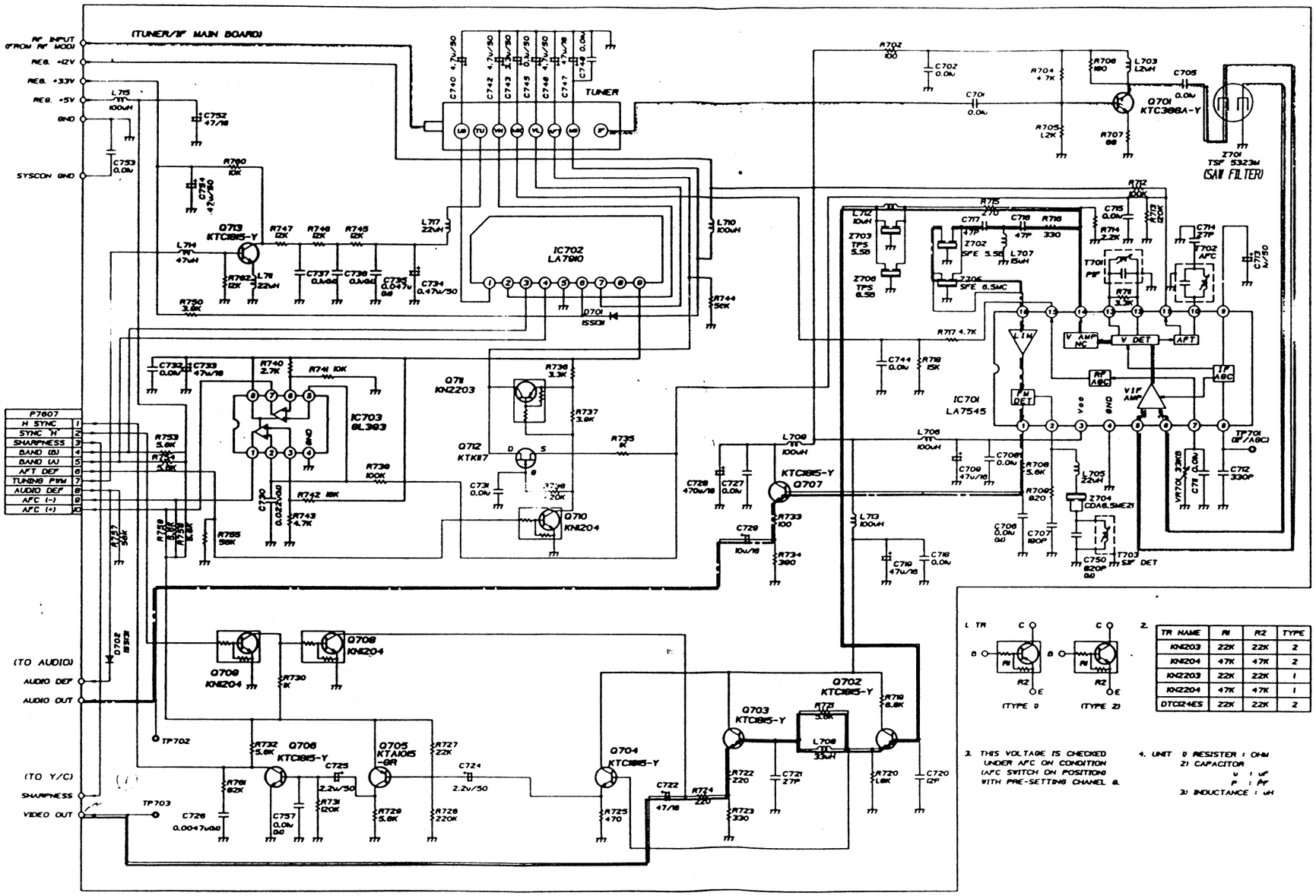
4. UNIT 1) RESISTER : OHM
2) CAPACITOR
U : uF
P : PF
3) INDUCTANCE : uH

①



Tuner / IF Circuit Diagram

MODEL: VCR-752K



5. IC/TR. PIN VOLTAGE

IC701 (LA7545)			
NO	VOLTAGE	NO	VOLTAGE
1	5.45	9	8.53
2	5.01	10	9.05
3	8.57	11	5.48
4	0	12	8.58
5	4.45	13	8.56
6	4.45	14	4.84
7	3.23	15	8.28
8	8.53	16	1.94

IC703, BL393			
NO	VOLTAGE	NO	VOLTAGE
1	0.08	5	5.47
2	5.47	6	8.1
3	2.39	7	0
4	0	8	8.55

IC702, LA7910			
BAND SEL. POSITION			
NO	VHF L	VHF H	UHF
1	0.12	0.12	11.34
2	0	11.39	0.01
3	0	4.54	0
4	4.53	0	0
5	0	0	0
6	13.07	13.06	13.08
7	11.41	0	0
8	1.19	0	0
9	11.55	11.55	11.53

TRANSISTOR PIN/VOLTAGE			
SYM/NO	B	C	E
Q701	1.80	10.09	1.05
Q702	4.21	3.53	3.52
Q703	2.85	8.75	3.52
Q704	3.52	8.75	2.85
Q705	5.07	6.05	5.02
Q706	-3.66	1.52	0
Q707	5.22	8.76	4.55
Q708	0.07	1.05	0
Q709	4.98	0.8	0
Q710	0	11.54	0.01
Q711	11.54	5.5	11.57
Q712	5.51	6.05	5.51
Q713	0.43	0.86	0.03

1. TR

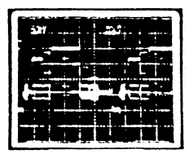
2.

TR NAME	R1	R2	TYPE
KN2203	22K	22K	2
KN2204	47K	47K	2
KN2203	22K	22K	1
KN2204	47K	47K	1
DTC124ES	22K	22K	2

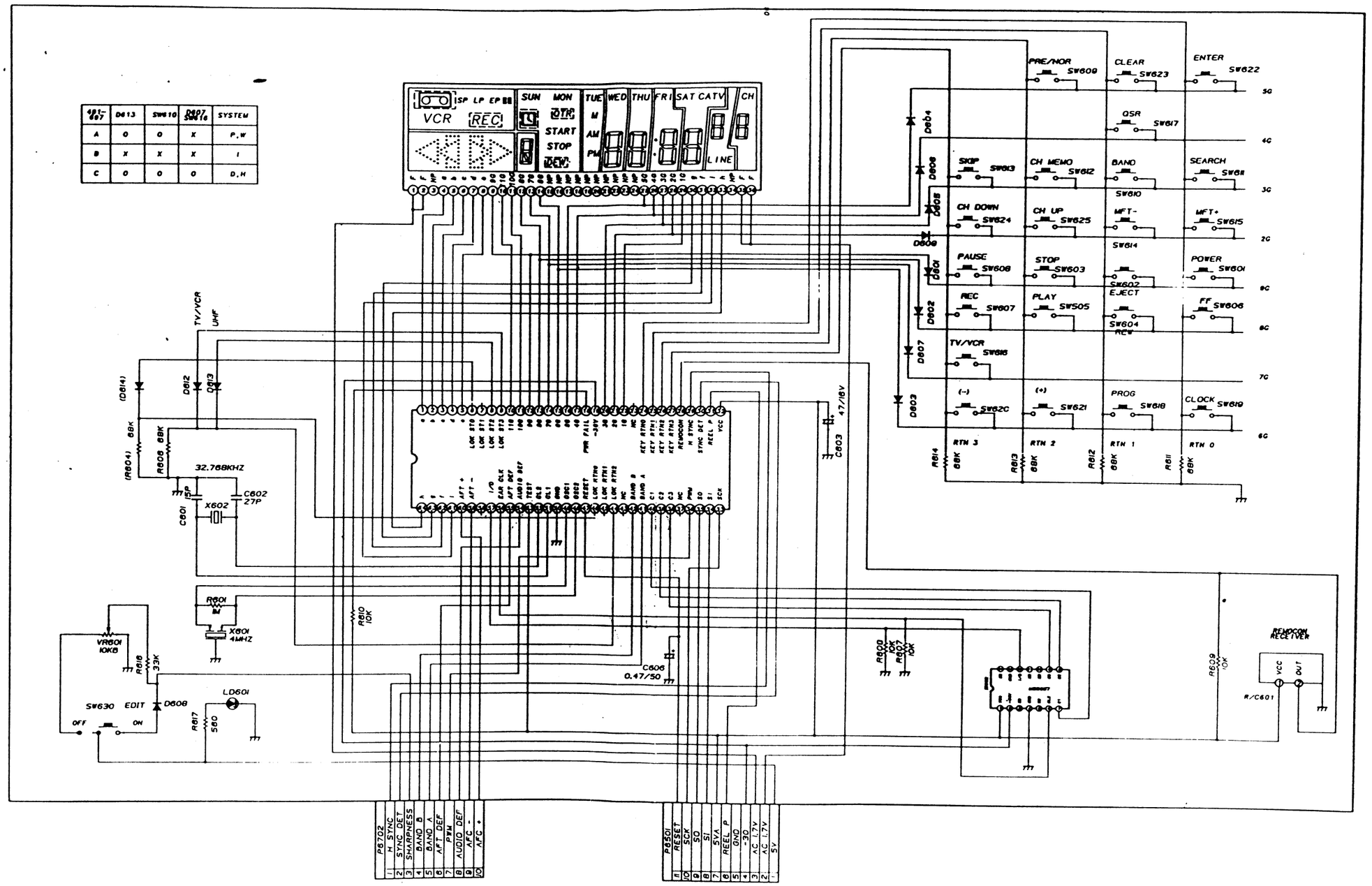
3. THIS VOLTAGE IS CHECKED UNDER AFC ON CONDITION (AFC SWITCH ON POSITION WITH PRE-SETTING CHANNEL 8.

4. UNIT 1) RESISTER : OHM
2) CAPACITOR
u : uF
p : pF
3) INDUCTANCE : uH

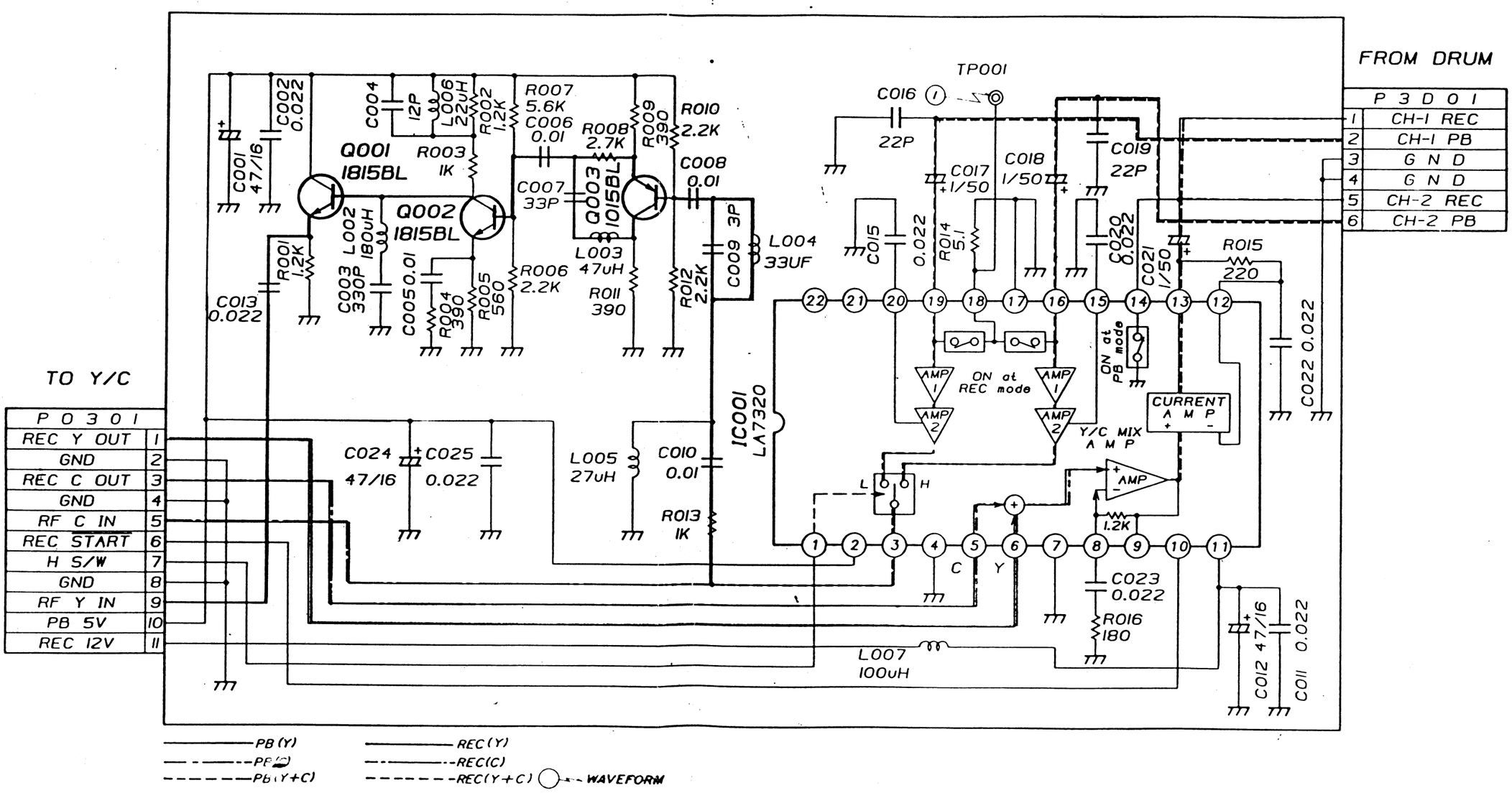
①



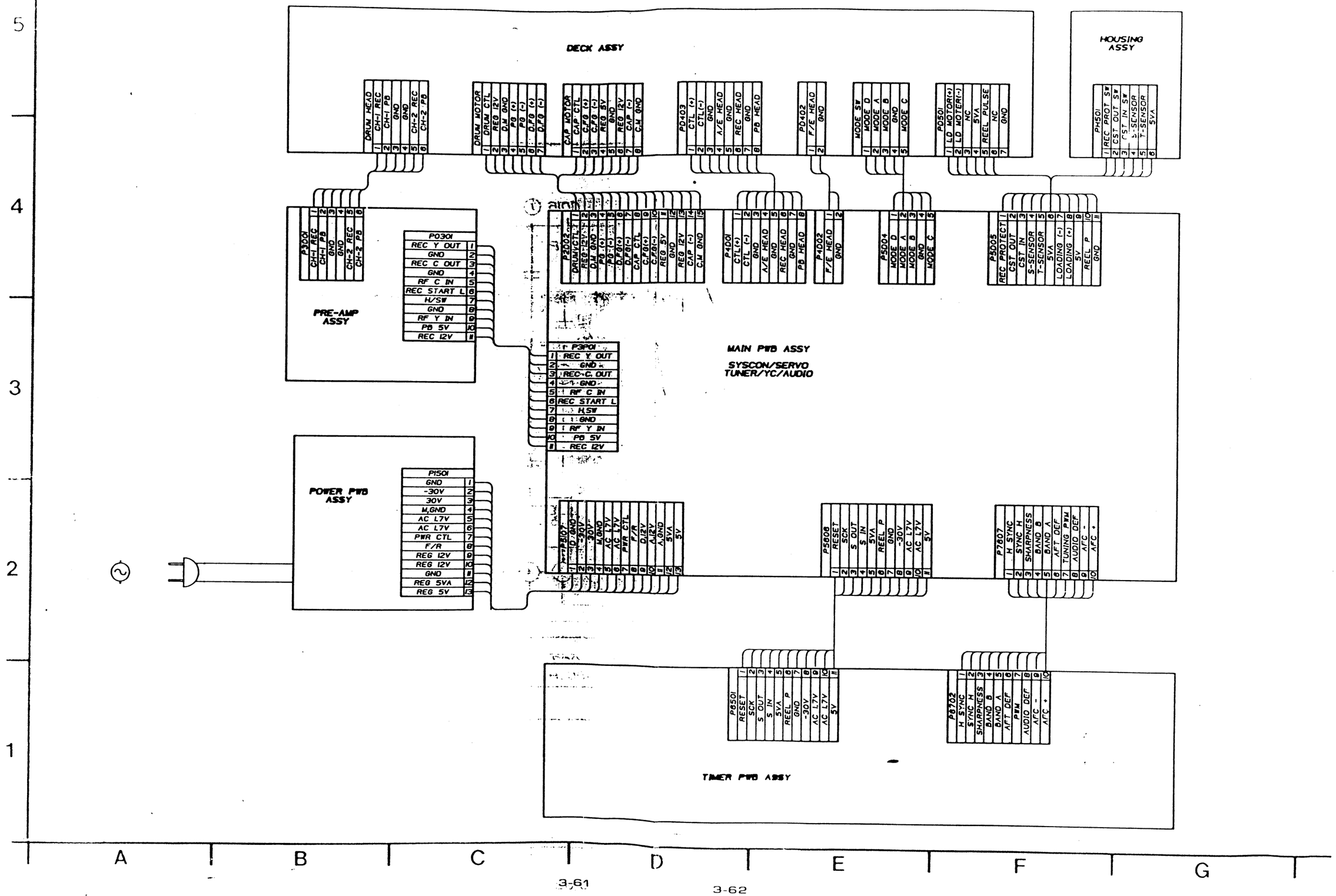
6. Timer Circuit Diagram



7. Pre-Amp Circuit Diagram

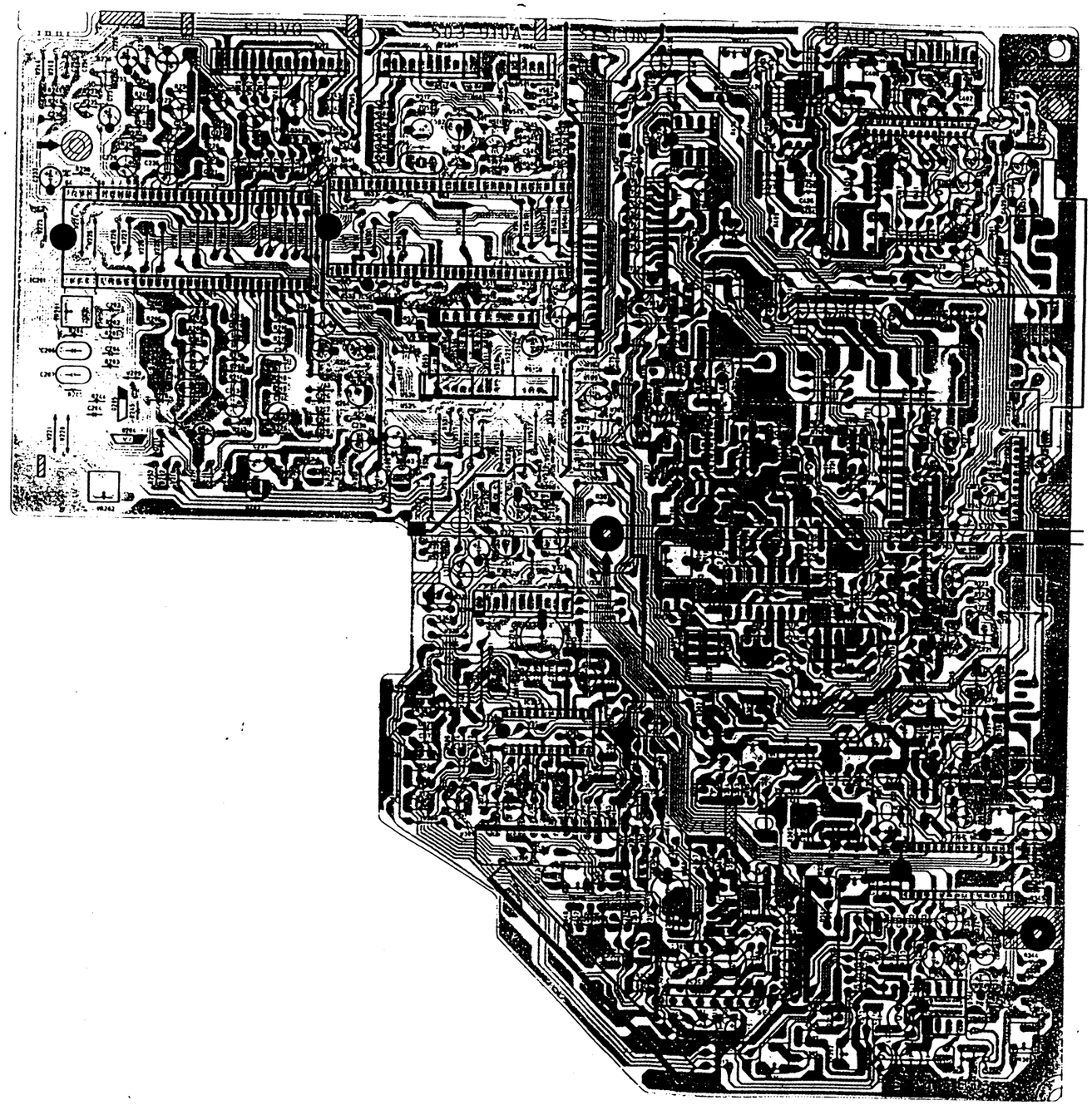


8. Connection Circuit Diagram

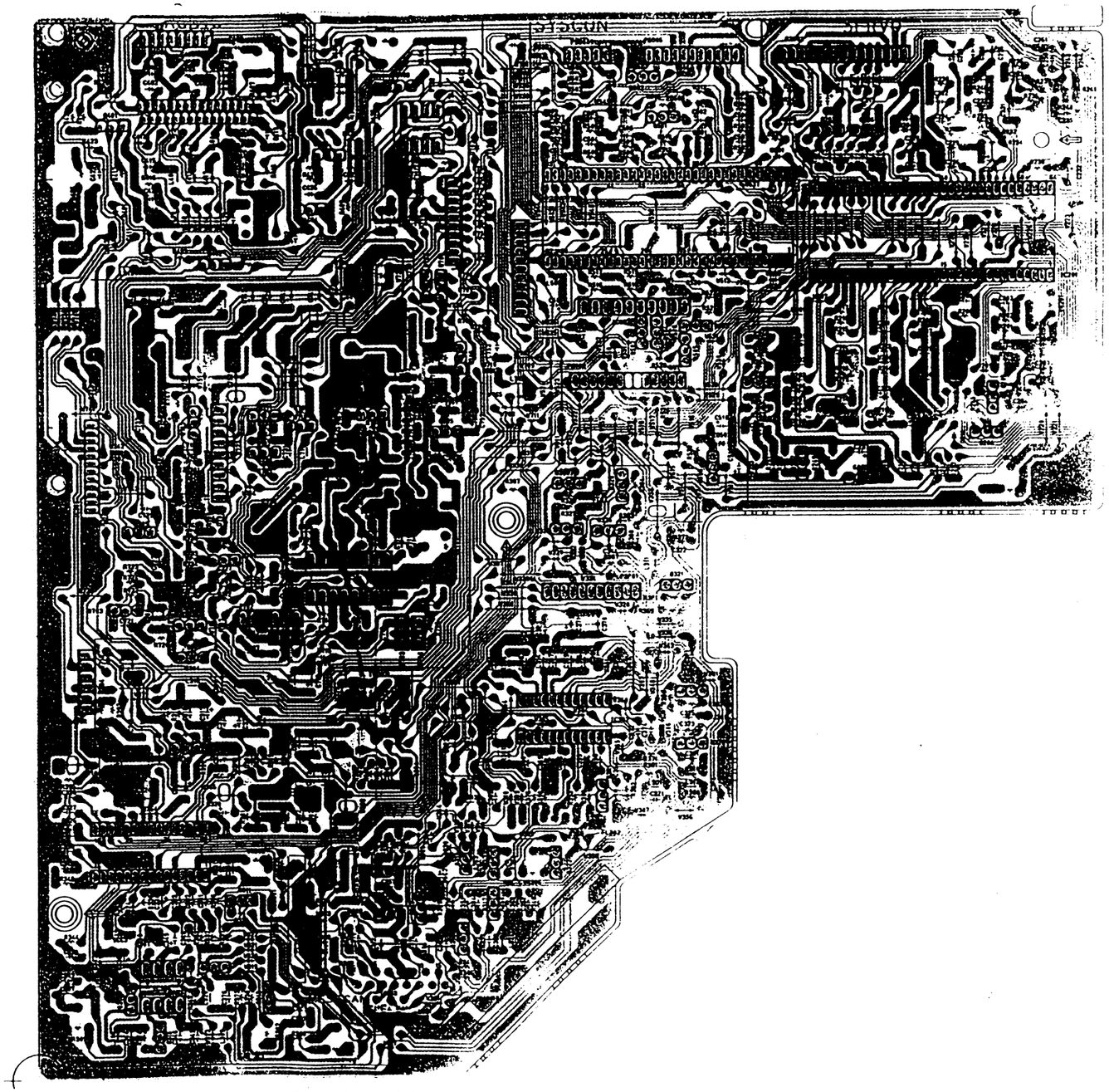


PRINTED CIRCUIT BOARD DAIGRAMS

1. Main P.C.Board (Model Type SCART Jack)

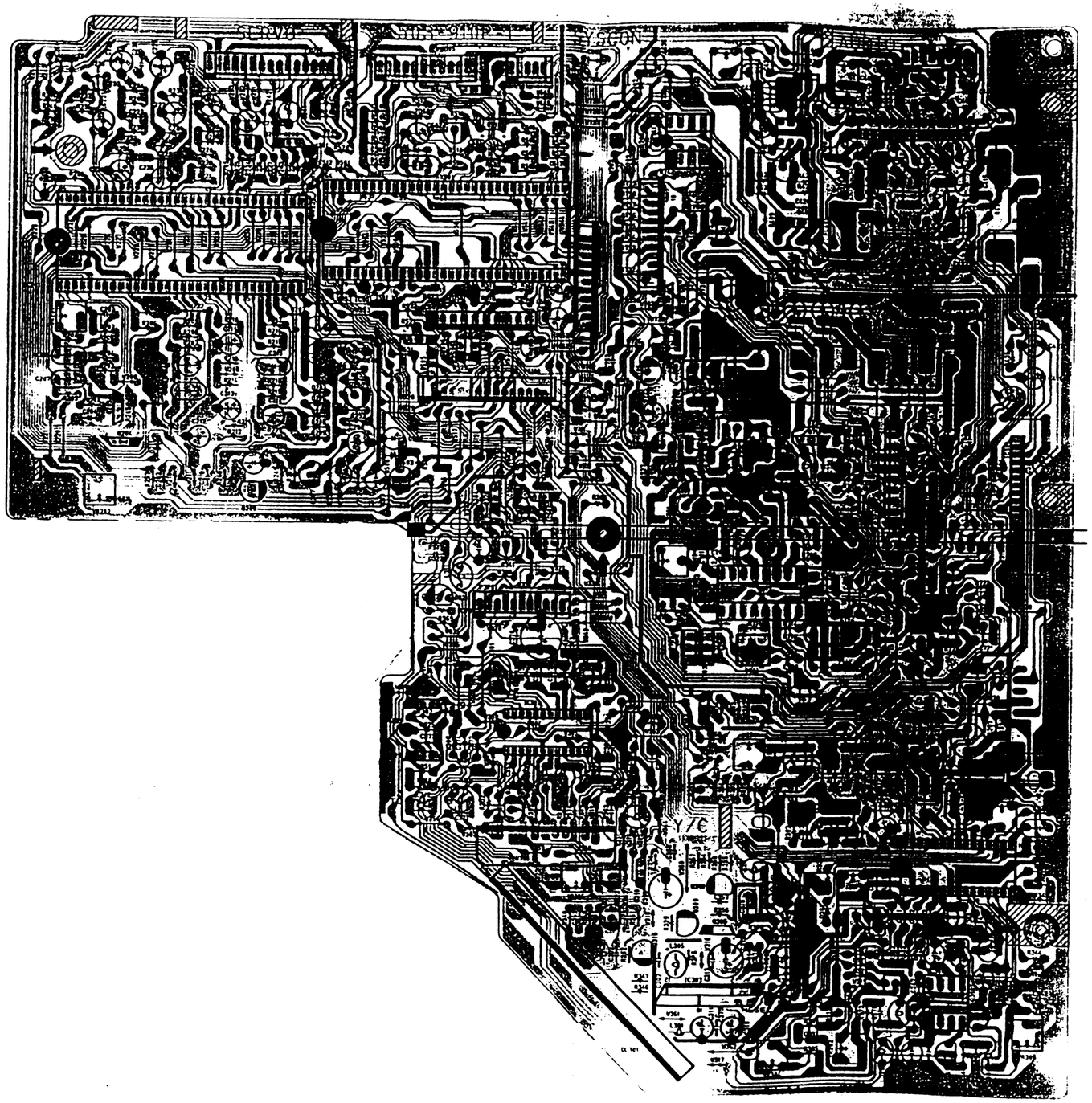


(Component Side)

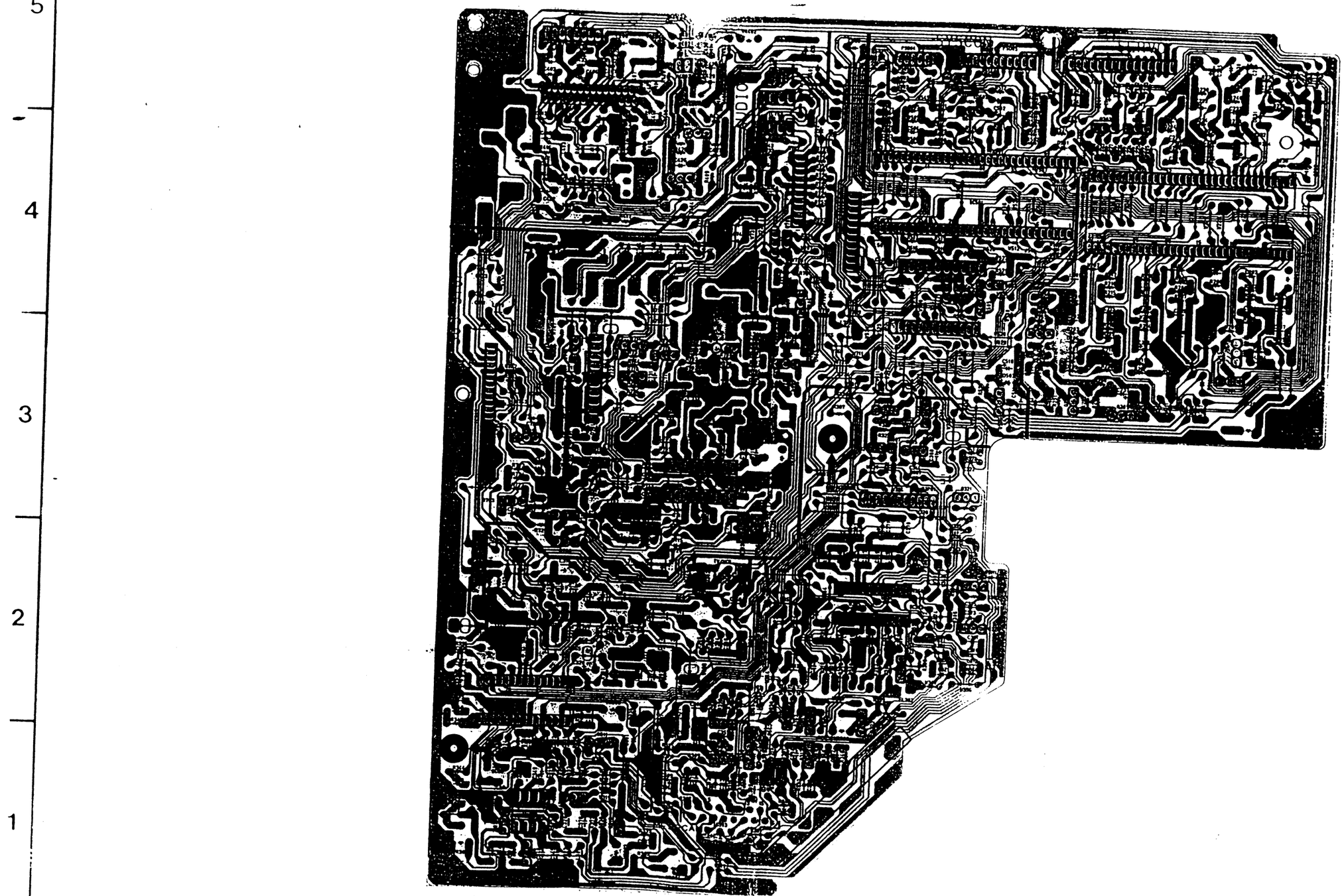


(Solder Side)

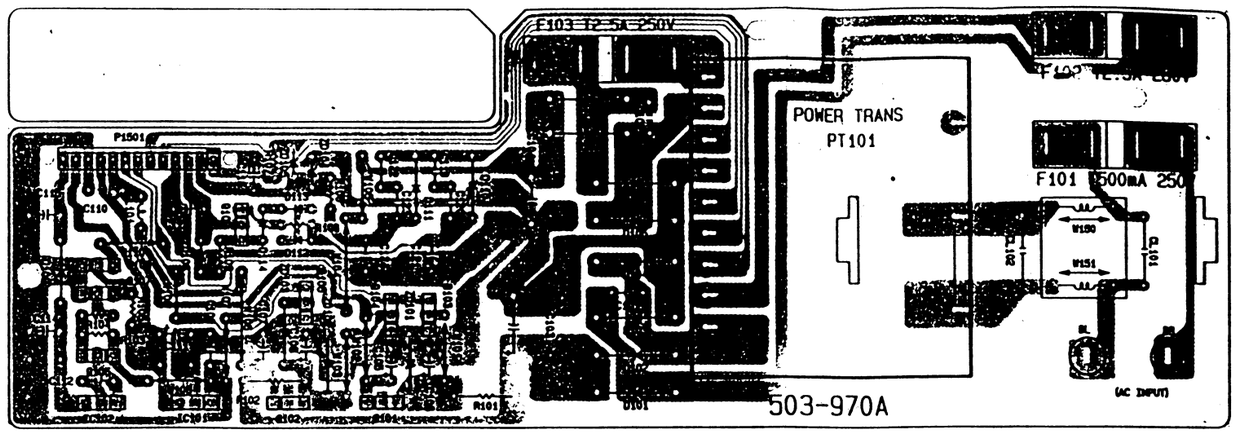
Main P.C.Board(Model Type RCA Jack)



(Component Side)

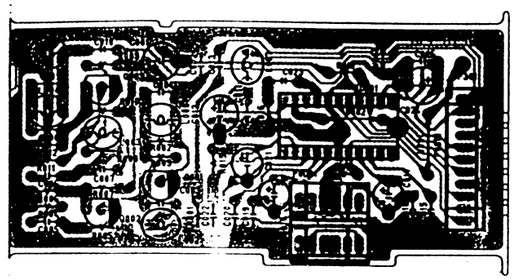

5
4
3
2
1
A
B
C
D
E
F
G
(Solder Side)

2. Power P.C.Board



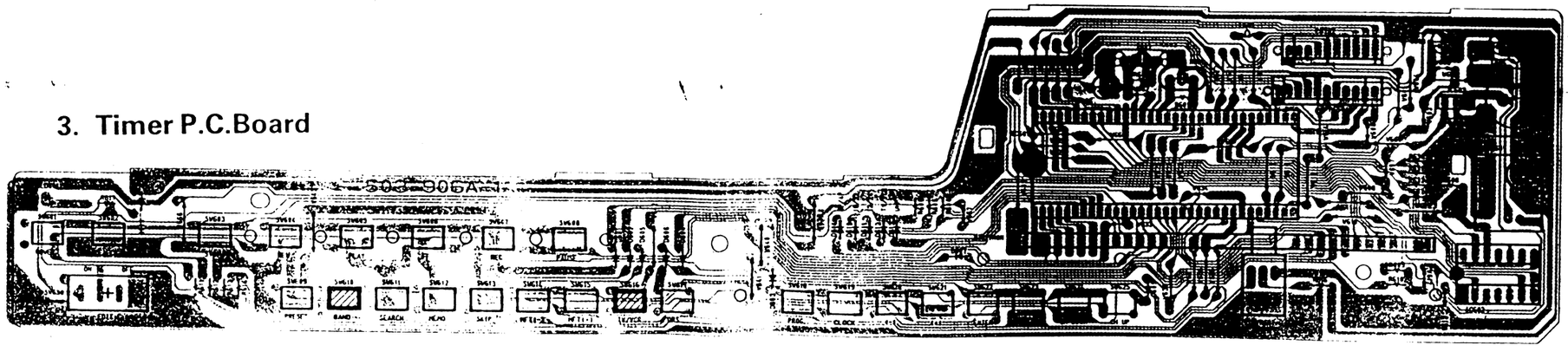
(Component Side)

4. Pre-Amp P.C.Board

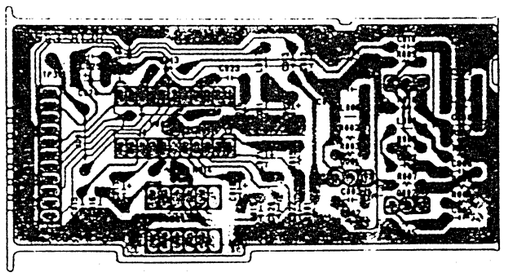


(Component Side)

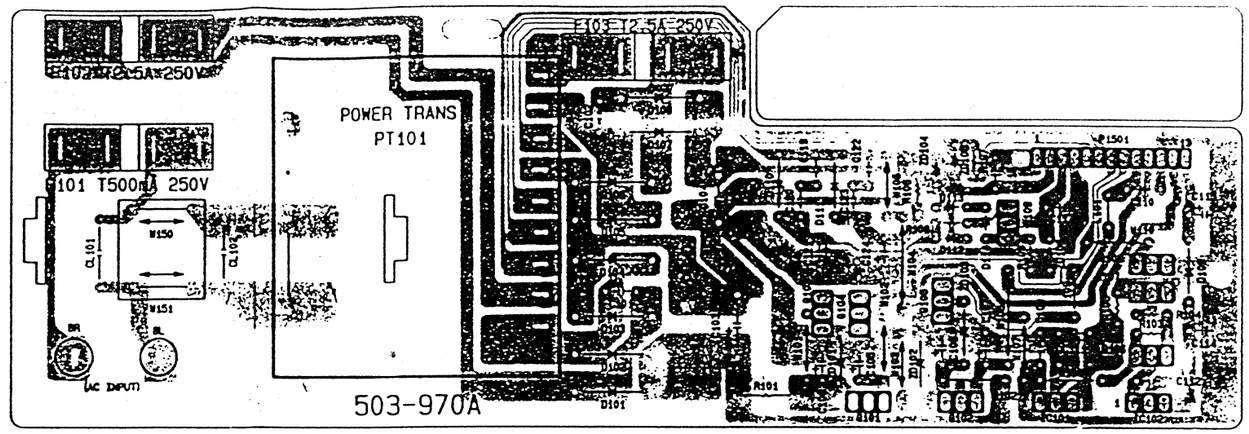
3. Timer P.C.Board



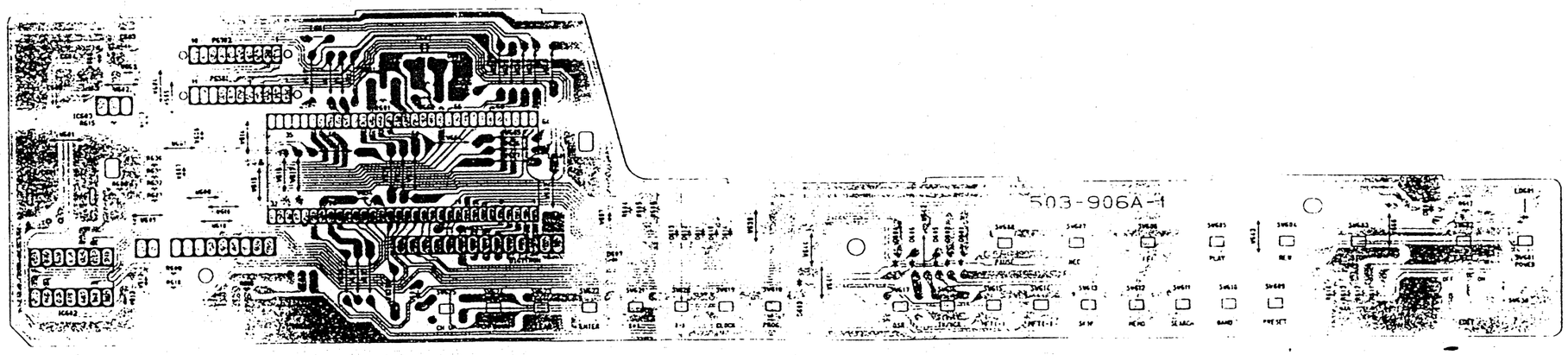
(Component Side)



(Solder Side)



(Solder Side)



(Solder Side)